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DM: That, of course, is partly a question of cost. The United States has immense hydrocarbon reserves and at a certain cost they can supply a great deal of their own demands.

BP: Professor Wilson conceded that point that there's probably es energy resources of one form or another available for a long time to come but they become prohibitively expensive and (we) wouldn't be able to drive automobiles anymore and that kind of thing.

DM: His argument was basically that we should cut down on the exports. To a degree I think it can be said that government policy has been in that direction, at least with regard to natural gas for the last several years and of course very recently with regard to oil. Not only have we put a control on oil for the time being, we've also indicated we'll be having a full scale public hearing to decide how much should be reserved, how much oil should be reserved for Canadian needs in the future so we can meet the kind of concern that he stated, perhaps in an extreme form (voices overlapping).

BP: . . . Pursue this just one more step. The Interprovincial pipeline, the recent export controls were applied not because of a reserve question, I understand, but because the pipeline capacity was insufficient to serve both markets. Am I correct?

DM: No, not exactly. Marginally it was the pipeline limitation, but behind that the productive and gathering system in Alberta also had a limitation, for example, in the month of March they couldn't deliver more than something like about 95 or 98 per cent of the requests for oil that had been made, so that there was limitation, yes, in the carrying system, also in the productive system, and also in our mind, of course, was this long range question as to how the established reserves of Canada were being used up and as to what kind of reserve arrangement (voice overlap)—

BP: We now have an application by Interprovincial Pipeline Company to expand the size of its delivery system. Is that intended primarily to serve the Canadian market or to serve the American market?

DM: Basically it will serve both of them. I think it's fair to observe that the existing system has been operating just about at capacity and indeed beyond what I'm told most pipeline engineers would regard as being a safe margin, so to a degree it is to make up the marginal capacity that you should always keep in a system in case you have a breakdown at some point in it. It will also, of course, be there to both service exports and service the Canadian market but the servicing of the exports, of course, is now going to be subject to export control and the further limitation that will be on exports from the fact that the producing system may not be substantial enough to meet the demand.

BP:Does this construction application imply a follow up application by the petroleum producers to export more oil?

DM: Every month they'll, as it's called, put in nomination as to how much they want. The National Energy Board will then have to decide how much the Canadian market will need and therefore how much can go for export and so the application certainly will follow up this—the decision will have to be in each individual case as to how much we export.

BP: So the pressure on Canada to export more of its energy is certainly not going to diminish in the—

DM: No, the high demand is going to be there for Canadian energy products and we're going to be in this dilemma of being able to make a return on it now or providing a reserve for the future. (You would) agree this gets into, if you like, a provinicial rights contest because on the one hand the Province of Alberta has been interested in maximizing its returns from this particular commodity and the other parts of Canada which are the prime consumers are concerned about saving their supply.

BP: Well, that raises the whole subject of petroleum and energy politics and you've (voices overlapping) three cornered fight. Can Canada—I'd like to put this proposition to you—is it possible for Canada, so heavily dependent upon the United States in so many other directions, to really be tough about energy exports? Can we simply say to them, no more, and get away with it?

DM:Well, in absolute terms we can't because the United States might say that to us. For example, the Province of Ontario—about a third of Ontario's hydro generating capacity comes from (cough) coal (fires) and nineteen million tons of coal imports come into Canada from the United States, so that our economies are so intermingled that it seems to me unrealistic to suggest that we're going to deal with them on that basis. We've got some hostages to fortune in their hands, but on the other hand Canada has both in oil and gas put up her limits on what its prepared to trade and these have been accepted in the United States.

DA: Does the U.S. expect much more energy out of us in terms of oil and gas?

DM: They're realistic. The kind of problem they got they know the Canadian field can't answer them. We're (of) marginal value to them. Canadian oil exports are about 5 per cent of their demnnd and gas exports about 7 per cent. They know they can't expect a dramatic increase and they know they're going to have to solve their energy problem apart from Canada. There's been a certain amount of talk in recent years, an assumption that we in Canada were in effect in the position of another area like the Gulf, depending on where you are you call it either the Persian Gulf or the Arabian Gulf, and that we had these kinds of fields in Canada. I think we should disabuse ourselves. We have some rather substantial reservoirs but nothing like they have in the (voice overlap).

PS: But doesn't all this argument about exports and how much we have and whether we should continue to export oil and gas, doesn't this all suggest that we should have a national energy policy,

DM: Well, the Government thinks it's desirable and I hope by May that we'll be tabling in the House the studies which would be the basis for establishing a national energy policy. I don't think a national energy policy can or should be established by the Federal Government alone. In the first place you have claims such as those of Alberta over oil or, say, Newfoundland over hydroelectric power, the province being basically the owner of the resource, and while the Federal Government regulates the interprovincial or international trade in it, I think there has to be a consensus between the in effect eleven governments—the ten Provincial and the Federal Government—as to what our energy policy should be. But it is incumbent on the Federal Government to give leadership in trying to achieve that kind of policy and these policy studies that we'll be laying before Parliament will be the first step in trying to achieve that.

GB: Your colleague, James Richardson, said here a few weeks ago, more or less, more power to Premier Lougheed in his efforts to get more money for gas sent down from Alberta to its eastern customers. How do you as the Energy Minister and moreover as an Ontario Minister feel about that?

DM: It was interesting that Mr. McKeough, the Ontario Minister, said that if he was in Lougheed's position he'd do exactly the same thing. I think that my responsibility as Energy Minister is to try and match the wish of the Ontario market to secure supply of energies at the lowest possible cost with the Alberta ambition to get the best possible return and—(voices overlapping)

GB: . . . Like amending the Constitution?

DM: No, it's not. I think this is one of those areas where I don't think it's done by a Constitutional settlement. I think it's done by consultation in private and I think it can be done by this kind of negotiate but it's not an easy thing to (do).

GB: Do you have a role in that reconciliation?

DM: Yes, I do. I'll be seeing Mr. McKeough a little later this month. I've been seeing the Alberta authorities regularly in this regard. We hope that we can close the gap and that we'll be able to achieve some kind of a compromise on this but in a compromise everybody has to give a little.

DA: Are you waiting for the U.S. to bring down its energy policy which is expected around mid-April bofere you bring down yours?

DM: We're not really waiting on them. We expect to go in May in any event but it's perhaps a happy event that they will be going in April and we'll have some better idea of the kind of general international ball game, if you like, that we're playing in because the American policy will have a big impact on the world energy scene into which we'd be introducing our (voice overlap)—

BP: We're almost out of time and I'd like to get in one quick political question. You're a former House leader of the Liberal Administration, Mr. MacDonald. Would you interpret a defeat of the Government's corporation tax bill as a loss of confidence in the Government by the House of Commons?

DM: As a former House leader one of the things that I always thought was critically important is that matters of House procedure should be decided by the House leader and he shouldn't be getting gratuitous advice particularly over television from his colleagues.

BP: Well, I'm not asking your advice (voice overlap) give this panel your opinion.

DM: I don't think I'd want to spoil his fun for him.

BP: Is the Government going to bring in the tax legislation unchanged?

DM: I expect that the bills will be coming . . .

Text

In my judgment, it is quite evident that the gas can be much more easily transported by pipeline, because otherwise you have to liquefy the gas to get it to the market. If you judge the experience in liquefaction in North Africa—and they are starting to do that now in Russia—it is a very expensive way of taking the gas to the market. The cheapest form of transportation for gas is, at this time in the development of technology, a gas line. In order to use boats, planes or trains you have to liquefy the gas.

For oil purposes, I do not know as yet. I do not expect to see an application for oil transportation before the government very soon for two reasons. We do not have at this time enough oil in the Delta to justify commercial operation because of the distance between the Mackenzie Delta and any market.

It is not likely at this time that we will have an application to transport the oil from Alaska through Canada. As you know, there is a controversy in the United States now. I think President Nixon said he is favouring the Alaska pipeline and shipping from Valdez to California. But Senator Mondale of Minnesota had a bill in the Senate last week urging an oil line in Canada. So it is still a very confused situation, and I do not expect there will be an application for an oil line very soon in Canada, or for other means of transportation.

Mr. Barnett: The Minister recognizes the controversy in British Columbia too.

Mr. Chrétien: Yes. We as a government have said to the Americans many times that we oppose the shipping of oil along the British Columbia Coast, and that we would prefer to have an oil line on the ground because there is much less danger of pollution with a pipeline than with a ship.

The Vice-Chairman: Mr. Firth, you have another minute.

Mr. Firth: Yes. I will be very brief. This next question may even be out of order. I do not know.

Interpretation

J'estime quant à moi que le gaz peut être transporté beaucoup plus facilement par gazoduc; toute autre méthode exige que le gaz soit liquéfié d'abord. D'après les expériences de liquéfaction en Afrique du Nord, et plus récemment en URSS, ce procédé est beaucoup plus coûteux. Le moyen le plus avantageux de transporter le gaz est, avec les moyens actuels, le gazoduc. Tout autre moyen de transport, comme le bateau, l'avion, le train, exige au préalable la liquéfaction du gaz.

Pour ce qui est du pétrole, je ne sais pas. De toute façon, je ne m'attends pas à ce qu'une demande de transport du pétrole soit présentée au gouvernement dans un avenir rapproché, et ce pour deux raisons. D'abord, il n'y a pas suffisamment de pétrole actuellement dans le delta pour qu'il soit rentable vu l'éloignement des marchés.

D'autre part, on ne s'attend pas à une demande de transport du pétrole de l'Alaska en passant par le Canada. Comme vous le savez, il y a controverse aux États-Unis actuellement à ce sujet. Le président Nixon s'est dit en faveur d'un pipeline traversant l'Alaska et du transport maritime de Valdez à la Californie. Le sénateur Mondale du Minnesota a pour sa part présenté la semaine dernière, un projet de loi prévoyant la construction d'un oléoduc au Canada. La situation reste assez confuse, mais on ne s'attend à aucune demande de construction d'oléoduc ou requête visant tout autre mode de transport dans un avenir rapproché.

M. Barnett: Le ministre n'ignore pas qu'il y a controverse en Colombie-Britannique également.

M. Chrétien: Non. Le gouvernement a fait part aux autorités américaines de son opposition à l'égard de tout transport maritime de pétrole le long des côtes de la Colombie-Britannique; il a indiqué clairement qu'il préférait la route terrestre pour le transport du pétrole pour réduire les risques de pollution.

Le vice-président: Il vous reste une minute, monsieur Firth.

M. Firth: Je serai bref. J'ignore même si ma question est recevable.

Text

I see that the attitude of the governments has not changed since 1888. You will notice that in the debates of the Senate in 1888 the senators were talking about trying to find a way to get the oil out of the North to Churchill and possibly on to England, never thinking of making use of the energy and resources up there.

Anyway, my other question has to do with navigational aids in the North. This is another matter of very great importance. It has come up in the inquest into the crash which has cost some lives. I may be asking the wrong minister, but anyway I would like to know if there are any plans to upgrade the navigational aids in the North.

Mr. Chrétien: Yes, I think there are some plans. I think the Minister of Transport, Mr. Marchand, made a statement in the House this week that the navigational aids will be improved. He mentioned too that by next year every plane will have an electronic "beep, beep". I do not know how you say that in English.

there will be this provision about the fully-elective council, I will tell you that my personal view would be yes. This is now developing in the Northwest Territories, and I have said in public that I hope it will be like that. You should read the two or three last editorials in the Yellowknife paper, *News of the North*. They say that they find a lot of virtue in having a couple of appointed members. Personally I do not think it is needed. I do not know what my colleagues will think about it. I do not win all my battles in the Cabinet, this is normal, and if any of you become ministers some day you will know that for sure.

I hope this legislation will be ready before June of this year.

Interpretation

Je constate que l'attitude des gouvernements n'a pas changé depuis 1888. Vous lirez dans les débats du Sénat de 1888 que les honorables sénateurs parlaient de trouver un moyen d'extraire le pétrole du Nord canadien pour l'expédier peut-être vers la Grande-Bretagne en passant par Churchill, sans songer un instant à utiliser cette énergie et ces ressources sur place.

C'était un aparté. Ma question a trait aux aides à la navigation dans le Nord canadien. C'est un sujet très important. Il en a été fait mention au cours de l'enquête concernant un écrasement aérien qui a fait plusieurs victimes. Le ministre n'est peut-être pas le premier concerné mais je lui demande si on projette d'améliorer les aides à la navigation dans le Nord canadien.

M. Chrétien: Il y a certainement des projets. C'est le ministre des Transports, M. Marchand, je pense, qui, la semaine dernière, a indiqué à la Chambre que les aides à la navigation seraient améliorées. Il a mentionné également que dès l'an prochain tous les appareils seront munis d'un indicateur électronique d'écrasement. Je ne sais pas très bien quel est le terme.
cette disposition concernant un conseil entièrement élu, personnellement je répondrais par l'affirmative. Cela est en train de se produire dans les Territoires du Nord-Ouest, et je l'ai dit en public que je souhaitais qu'il en soit ainsi. Vous devriez lire les deux ou trois derniers éditoriaux du journal de Yellowknife, le *News of the North*. Il y est dit qu'on voit un grand nombre d'avantages à nommer deux personnes. Personnellement, je ne pense pas que ce soit nécessaire. Je ne sais pas ce que mes collègues en penseront. Je ne sors pas vainqueur de toutes mes batailles au sein du Cabinet, c'est normal, et si l'un d'entre vous devient ministre un jour, il s'en rendra nécessairement compte.

J'espère que ce texte législatif sera prêt avant juin de cette année.

Text

The Chairman: Mr. Firth.

Mr. Firth: Thank you, Mr. Chairman. In the area of pipelines, highways, and soon. I have been making some statements across the country in trying to develop dialogue, discussion, and so on. I have met with a certain measure of success and I hope to be creating a little more interest in this area. The question I have about this is, is the government considering other modes of transportation, and should there be application for such, to move gas and oil out of the north? I am thinking in particular of possibly using a railway.

Mr. Chrétien: Yes, we are studying the proposition of having a railway in lieu of a pipeline, or perhaps some other means of transportation. It will be quite difficult to arrive at a conclusion on that because we have made the decision that a road is needed. Whatever happens, a road is very important for communication between the individuals who are in the North. Just having a railway will not satisfy the needs of the people. To give you an example, in the Schefferville area of Quebec, and so on, they have a railway to get the iron ore out of the Schefferville area to Sept-Iles, but there is great pressure from the people to have a road because they say they cannot drive their cars and they are very much isolated and with a road they could circulate and have more visitors and go out more easily. So, socially speaking, a road is a fundamental link of communication and we have decided to proceed with a road.

To decide between a railway and a pipeline, as you know, the resources that are in the North we will have to get out one way or another some day. Some people are thinking in terms of navigation, some people are thinking in terms of a pipeline and now some are thinking in terms of a railway. Perhaps some even think in terms of baked beans to get the oil out of the North. There are all sorts of ideas that are brought up. But probably those who want to get the resources out will bring some proposition to the government in order to get out the resources they have discovered in the North. It is going to be an economic decision, keeping in mind the social and environmental implications. As a government we are sitting here and we say to those who would like to have the resources out, come to us with some proposition.

Interpretation
Text

Le président: Monsieur Firth.

Mr. Firth: Merci monsieur le président. Pour ce qui est des oléoducs, des autoroutes, etc., j'ai fait quelques déclarations dans le pays afin d'essayer d'instaurer un dialogue, une discussion. J'ai rencontré un certain succès et j'espère pouvoir sensibiliser davantage l'opinion à cet égard. La question que j'ai à ce sujet est la suivante: Le gouvernement envisage-t-il d'autres moyens de transport, et y aurait-il en une demande dans ce sens, pour acheminer le gas et le pétrole du Nord? Je pense en particulier à l'utilisation possible d'un chemin de fer.

M. Chrétien: Oui, nous étudions la proposition de le transporter par voie ferrée au lieu de le faire par un oléoduc, ou peut-être par quelque autre moyen de transport. Il sera très difficile d'arriver à une conclusion dans ce domaine parce qu'il a été décidé qu'une route était nécessaire, une route est très importante pour les communications entre les personnes qui habitent dans le Nord. La seule présence d'un chemin de fer ne répondrait pas aux exigences des habitants. Pour vous donner un exemple, dans la région de Schefferville au Québec, etc., il y a un chemin de fer qui achemine le minerai de fer de la région de Schefferville à Sept-Iles, mais les habitants de cette région font pression pour obtenir une route qu'ils sont très isolés: s'il y avait une route, ils pourraient circuler et avoir davantage de visiteurs qui viennent les voir et eux-mêmes pourraient sortir plus facilement. Ainsi, du point de vue social, la route est un lien fondamental de communication et nous avons décidé d'en entreprendre la construction.

Pour choisir entre un chemin de fer et un oléoduc, comme vous le savez, pour les ressources qui se trouvent dans le Nord, il nous faudra trouver un moyen un jour ou l'autre. Certaines personnes pensent à la voie maritime, d'autres pensent à un oléoduc et maintenant d'autres pensent à un chemin de fer. Il y en a peut-être qui pensent que c'est facile d'extraire le pétrole du Nord. Toutes sortes de rumeurs circulent. Cependant, ceux qui voudront extraire les ressources du Nord canadien devront faire une proposition au gouvernement avant de pouvoir donner suite à leurs projets. A ce moment-là la décision sera d'ordre économique, compte tenu évidemment de l'impact social et écologique. En tant que gouvernement, nous attendons que ceux qui sont intéressés à ces ressources fassent une proposition.

National Resource Growth: By Plan or By Chance? Oil and Gas Pipeline Development

Excerpts from a speech by the Honourable *J. J. Greene*, Minister of Energy Mines and Resources to the Vancouver (B.C.) Men's Canadian Club, February 12, 1971.

One of the most critical resource developments proposed for the next few years in Canada is that of the construction of pipelines to carry discoveries of gas and oil in Alaska to U.S.A. continental markets. These proposals are critical in many ways. They raise, immediately, the problem of Canada's geographical situation as a "land bridge" between two parts of the U.S.A. on this continent, and they bring us in a visible and tangible way closer to a decision with respect to our role in the management of the North American land mass.

The day has gone in international affairs when each country can carry on, sovereign in its own territory and impervious to the impact of its actions on its neighbours. This is true of the U.S.A. in its relations to Canada and it is true of Canada's actions in relation to the U.S.A.

In terms of pipelines and the development of the Canadian petroleum industry, there are a few truths which should be noted: 1) the only economic way now known for the U.S.A. to transport its natural gas from Alaska to the continental U.S.A. is by pipeline across Canada. 2) substantial oil and gas potential in Canada lies in the areas of the Yukon and the western portion of the Northwest Territories. They are, however, remote from markets and remote from transportation, but they might become economically accessible and useful to Canada if major oil and gas trunk lines, based on economics of their own, could pass through this potentially resource-rich area of Canada.

Assuming that we can satisfy ourselves that the ecology of our northern environment can be protected, and that the economic impact of such a substantial development can be absorbed constructively, can we deny this vital service to our neighbor? At the same time, would our neighbor not recognize that there are vital services which can be rendered to Canada?

The Canadian Government is not opposed to the construction of oil and gas lines from Alaska through Canada to the continental U.S.A. and the Government of Canada has already acted in a broad way to define the national goals of such a development. On August 13, 1970 I announced some definitive guidelines to assist industry in their planning. These included:

(1) The ministers of Energy Mines and Resources and Indian Affairs and Northern Development will function as a point of contact between government and industry and prospective applicants will receive guidance and direction to those federal departments and agencies concerned with the particular aspects of northern pipelines.

(2) Initially, only one trunk oil pipeline and one trunk gas pipeline will be permitted to be constructed in the north within a "corridor" to be located and reserved following consultation with industry and other interested groups.

(3) Each of these lines will provide either "common" carrier service at published tariffs or a "contract" carrier service at a negotiated price for all oil and gas which may be tendered thereto.

(4) Pipelines in the north, like pipelines elsewhere which are within the jurisdiction of the Parliament of Canada, will be regulated in accordance with the National Energy Board Act, amended as may be appropriate.

(5) Means by which Canadians will have a substantial opportunity for participating in the financing, engineering, construction, ownership and management of northern pipelines will form an important element in Canadian Government consideration of proposals for such pipelines.

(6) The National Energy Board will ensure that any applicant for a certificate of public convenience and necessity must document the research conducted and submit a comprehensive report assessing the expected effects of the project upon the environment. Any certificate issued will be strictly conditioned in respect of preservation of the ecology and environment, prevention of pollution, prevention of thermal and other erosion, freedom of navigation, and the protection of the rights of northern residents, according to standards issued by the Governor General in Council on the advice of the Department of Indian Affairs and Northern Development.

(7) Any applicant must undertake to provide specific programs leading to employment of residents of the north both during the construction phase and for the operation of the pipeline. For this purpose, the pipeline company will

provide for the necessary training of local residents in coordination with various government programs, including on-the-job training projects. The provision of adequate housing and counselling services will also be a requirement.

In response, industry is carrying out research projects with ecological, technical and economic consideration which are commendable and which will allow an early assessment of these questions. The final policy decision for the creation of a gas pipeline has not been taken, but we are prepared to address ourselves to the real problems as soon as industry is ready to present their proposals to us.

Personally, I think that the U.S.A. oil industry has been too hasty and too unplanned in its decision to move Alaska north slope oil across Alaska from Prudhoe Bay to Valdez and then by sea to receiving points in the U.S.A. northwest. Too hasty, because they did not give proper care and attention to the problems of the physical security of the oil line, the security of the environment in Alaska, the protection of the Alaska, British Columbia and Washington coastlines from sea-going tanker disasters, and to the question of the long-term economics of the operation of such a line and for policies which would lend themselves to the maximization of potential oil and gas supplies to the U.S.A.

There is no doubt in my mind that the U.S.A. Government will give the closest examination to the total merits of the alternatives available for the securing of supplies not only to the U.S.A. West Coast market, which is accessible to many supply sources, but also to the fast growing and highly urgent problems of the U.S.A. Midwestfi National strategies for the U.S.A. are every bit as important to them as our own strategies are to us.

To us it appears that an oil line from Alaska through Canadian territory would have the advantage of ruling out a vulnerable tanker link to markets and would provide more economic transportation of oil to the U.S.A. Midwest. A rough estimate indicates that oil through an all-Canadian line would be in the range of 30 cents a barrel cheaper, delivered at Chicago, than Alaska crude oil shipped by tanker to the West Coast and then by some pipeline from Seattle to Chicago.

I can see no merit whatever in the argument that the national security of the U.S.A. requires construction of a trans-Alaska oil pipeline and an ocean route. Canadian policies and Canadian undertakings are no less secure than those given by Americans within the U.S.A., and it will be a sad day for Canada-U.S.A. relations if the development of the Canadian economy, particularly the resource economy, is made to pay a subsidy because of an assertion about insecurity. One of the most important links in the natural gas supply of Ontario crosses the U.S.A. I refer to the Great Lakes pipeline which is 50 percent owned by Trans-Canada Pipelines. I think it has never occurred to us that this line across a "land bridge" in the U.S.A., linking two parts of Canada, is politically insecure.

I cannot believe that any serious concern could be expressed in the U.S.A. with the reliability of an agreement between our two countries under which Canada, for its part of the bargain, would undertake to ensure the uninterruptibility of the flow of Alaskan oil down a Canadian "land bridge" line equivalent in volume to any flow which could be put through the TAPS lines.

Failure of the U.S.A. to adequately consider the Canadian route for Alaskan oil could render a signal disservice to the growth of the western Canadian oil economy.

Principal Requirements For Northern Pipelines

by Robert D. Howland, Chairman, National Energy Board, Canada, Presented February 3, 1972 at Canadian Northern Pipeline Research Conference, Ottawa—Canada

Introduction

Good afternoon, Ladies and Gentlemen!

It is a great pleasure for me to be here this afternoon and to participate in this Canadian Northern Pipeline Research Conference. I wish particularly to compliment the Organization Committee for the foresight and initiative

which it displayed in organizing this timely conference. I know that the Committee has been hard at work on this project for almost a year and I am certain that we have all benefitted from the carefully prepared papers which we have heard and which we will hear.

The theme of the conference, as set out in its title, is related to research on pipe lines and specifically northern pipe lines, which are the centre of much study, research and concern on the part of both industry and government.

I propose to discuss:

First, why the National Energy Board is deeply involved in the subject of northern pipe lines;

Secondly, new factors of public interest which arise for northen pipe lines and the principles relative to governmental requirements for such lines; and

Finally, some of the procedural concepts which have emerged and the present views of the Board as to hearing applications for northern pipe lines.

The National Energy Board's Involvement in Northern Pipe Lines

Dealing with the nature of the Board's involvement in northern pipelines, I would point out that under the National Energy Board Act, no pipe lines of an interprovincial or extraprovincial nature can be built until the Board is satisfied that the line is and will be required by the present and future public convenience and necessity, and until the Governor in Council has approved the issuance of a certificate to that effect. In addition to this statutory requirement placed upon the Board, the Government has, as you are aware, issued guidelines for the construction and operation of northern oil and gas pipe lines. These guidelines were issued in August, 1970, by the Ministers of Energy, Mines and Resources and Indian Affairs and Northern Development. Paragraph 4 of the guidelines states that:

"Pipe lines in the north, like pipe lines elsewhere, which are within the jurisdiction of the Parliament of Canada, will be regulated in accordance with the National Energy Board Act, amended as may be appropriate."

Basically, this means that the Government has no intention to change the law and that northern pipe lines must obtain a Certificate of Public Convenience and Necessity from the Board.

What then is the nature of this concept of public Convenience and necessity?

The phrase "public convenience and necessity" appears to have been brought into the statute law in Canada from the United States. It has been pointed out by the Courts that the meaning of the phrase in a given case must be ascertained by reference to the context and to the objects and purposes of the statute in which it is found. For this, amongst other reasons, it has been generally held that it would be impracticable and undesirable to set out a precise definition of the phrase or to describe its range of application. Accordingly, you will not find the phrase defined in the National Energy Board Act. However, you will find the concept mentioned in Section 44 of that Act, which states:

"The Board may, subject to the approval of the Governor in Council, issue a certificate in respect of a pipe line or an international power line if the Board is satisfied that the line is and will be required by the present and future public convenience and necessity, and, in considering an application for a certificate, the Board shall take into account all such matters as to it appear to be relevant, and without limiting the generality of the foregoing, the Board may have regard to the following:

(a) the availability of oil or gas to the pipe line, or power to the international power line, as the case may be;

(b) the existence of markets, actual or potential;

(c) the economic feasibility of the pipe line or international power line;

(d) the financial responsibility and financial structure of the applicant, the methods of financing the line and the extent to which Canadians will have an opportunity of participating in the financing, engineering and construction of the line; and

(e) any public interest that in the Board's opinion may be affected by the granting or the refusing of the application."

From reading this Section of the Board's Act and from the general practice of the Board and other agencies, it is clear that it is the convenience and

necessity of the public which is to govern and not necessarily the convenience and necessity of the promoter of the pipe line or of the producers of the oil and gas. Although convenience alone is not enough, it is also clear that the word "necessity" does not bear its strict dictionary meaning. In other words, the word "necessity" does not mean something that is indispensable but, rather something that is needful, requisite or reasonably necessary. The determination of whether public convenience and necessity requires a certain action—for example, building of a pipe line—is not one of fact or law but rather, is predominantly the formulation of an opinion.

You will have noted that in Section 44 of the National Energy Board Act, while it is required that the Board *shall* take into account all matters as to it appear to be relevant, in respect of those following items which are specified, the governing language is discretionary. It is stated that the Board *may* have regard to a number of factors. The Board is required to consider a wide but unspecified list of factors, al those which appear to be relevant, and is also free, in particular circumstances, to ignore a factor contained in items (a) to (e) inclusive, of Section 44, for good and sufficient reason.

The National Energy Board has exercised the function expressed in Section 44 of its Act and in guideline No. 4 for the past twelve years. During that period, the Board has made numerous findings in respect of the public interest aspects of pipe lines in the southern part of Canada. Moreover, there has been an evolution in the various components which, taken together, are normally regarded as determining whether a project is in the public interest. New factors of concern have arisen and have resulted in the Board requiring specific construction or operational arrangements for pipe lines.

The term "public interest" has long been held to include any proper concern which the public in general or groups of individuals may have. Accordingly, the Board in examining public interest has concerned itself with many factors relating to the environment, ecology, noise abatement, wildlife, land features, water courses, drainage, vegetation, slope stability, prevention of soil erosion, etc. when concern regarding these matters has arisen by reason of the proposed construction or operation of pipe lines.

All of these, of course, have been in addition to the usual basic concerns respecting the economic and financial viability of pipe lines, the adequacy of resources and markets and the structural and engineering soundness of the pipe lines.

The issuance of a Certificate of Public Convenience and Necessity confers the power of expropriation upon the pipe line company. Before such issuance, the Board, and the Government which controls such action, must be satisfied that, on balance, the total public interest is served by having the pipe line constructed, even though private interests and the enjoyment of private property may be inconvenienced thereby. Access to the Courts provides that proper compensation will be paid for the use of any lands which are expropriated under the National Energy Board Act, and for any damage ensuing from construction of the pipe line. Provision can also be made that the land will be restored, as closely as possible, to its original condition and that the landowner will enjoy as far as practicable, the use of his land after completion of construction.

It must be apparent to this audience that the Board has always placed a very wide interpretation on the term "public interest".

We have always taken the view that a pipe line is much more than just an engineering structure and, as such, has impact upon the economy and environment of Canada and upon the welfare of numerous Canadians, including, but not limited to, those who live along its right-of-way. You will have noticed that some of the elements of public interest to which I have referred are very closely related to matters under review at this conference.

New Factors and the Principles Relative to Regulations of Northern Pipe Lines

This brings me to the second aspect of my remarks—the special factors of public interest which will arise in respect of constructing and operating pipe

The Government has announced its intention to allow pipe lines to be built in the north and has issued guidelines of a broad nature pertaining thereto. I have already quoted paragraph 4 of those guidelines in full. Other paragraphs of the guidelines are of interest to this group because they point up the areas of government concern and because they constitute the advice of government thus far given to industry and to certain areas of the public service. These paragraphs might be summarized as follows:

No. 2—Initially, only one trunk oil line and one trunk gas line within a corridor, to be located following consultation with industry and others;

No. 3—"Common" or "contract" carrier service at negotiated prices for all oil or gas tendered;

No. 5—A specific opportunity for Canadians to participate in financing, engineering, construction, ownership and management;

No. 6—The National Energy Board will ensure that applicants for certificates of public convenience and necessity document their research and assess expected effects of the project upon the environment; certificates to be strictly conditioned in respect of ecology and environment, pollution, erosion, freedom of navigation, rights of northern residents, according to standards issued by the Governor General in Council on the advice of the Department of Indian Affairs and Northern Development;

No. 7—Applicants to provide specific programs for employment of northerners during construction and operation, plus a provision for necessary training, including on-the-job training projects, adequate housing and counselling services.

Some of these points in the guidelines have received extensive discussion in the papers of this conference and it is not my intention to elaborate on them to any great extent.

Perhaps I might be permitted to make a few observations on some particular concerns which relate to pipelining in the north before drawing attention to other aspects of public interest which emerge when dealing with the wider questions of introducing large diameter oil or gas pipe lines through the north into not only the northern economy but that of Canada as a whole. However, what does emerge is that there *are* particular aspects relating to pipe line construction in the north.

The north has been described as a harsh land and yet a fragile land. We see in the north an area which is in delicate balance in respect of its thermal regime, its drainage patterns, and the viability of its wildlife and vegetation. Those balances exist isolated, to a great extent, from the impact of man and his machines. The entry of the explorationist, the pipeliner and a wide range of transportation media, will change the north and will place strains upon these delicate balances. It is the concern of all of us that these changes be for the better, if at all possible, or, at the very least, be rendered as neutral as possible.

The objective here is not to leave the north unchanged because that will mean leaving the north undeveloped. Rather the objective should be to develop the north in conformity with the *entire* long-range public interest of Canada. It is unlikely that an undeveloped north meets the criteria of either total or local public interest, either now or in the future. In fact, there is a great public interest in Canada in having the north developed and in making the benefits of its resources available to all Canadians. However, there is an equally valid public interest in being assured not only that the ecology of the north is preserved but that its peoples benefit from such development.

Oil and gas, when discovered in the north of Canada, can be expected to move to markets through pipe lines, although some oil may be so located as to be capable of cheaper ocean tanker movement for part of its journey to market. These pipe lines will be required in the public interest if the resources are to be developed. However, they must also meet the public interest in respect of the northern environment, social objectives, Canadian ownership and control, and financial objectives.

The Government announced its guidelines for northern pipe lines because it was aware of the large potential benefits of northern development, including pipe lines, for the people of Canada. It wished to convey to industry its willingness to have such pipe lines built, provided that the hazards of developments are properly controlled.

However, the guidelines require more definitive expression in the form of standards and regulations to be applied to land use and to the details of construction and operation before the pipe line industry can make comprehensive plans to meet the general provisions. The guidelines must be rendered effective without making the pipe lines unnecessarily costly and thereby risking the general overall basic objective of securing development in the north.

There is no doubt that pipe lines can be built in the north and that such pipe lines can be rendered safe to the environment and compatible with

major socialogical objectives and programs. There is a danger, however, of the pipe lines being priced out of the market if industry is compelled to meet standards which entail unrealistically high-cost components. Thus the guidelines must be translated into regulations and specific conditions which meet the concerns of the Government and the public and which are realistic and operable. This will require extensive dialogue between government and industry.

It is still only possible to speak in general terms about the nature of such regulations and conditions. For example, selection of a pipe line route is a general subject which will bring into focus many different interests and support sciences. Sensitive wildlife areas, nesting grounds, important fish-spawning streams and lakes must be entirely avoided, or at least have access restricted to certain times of the year. Areas of detrimental permafrost, known geological fault zones, potential landslide areas and regions of thermal erosion should all be avoided, or traversed only under conditions of adequate and continuing protection. Route selection will be guided by these factors and others based upon detailed soil sampling surveys, drainage surveys, wildlife inventories and sociological studies. Much of the responsibility for such matters lies with the Department of Indian Affairs and Northern Development.

Pipe line construction plans will be required to take careful account of studies to determine which areas require above-ground construction, and the proper techniques to be employed. Possible thermal insulation methods must be investigated and tested over a period of time. Special design requirements will relate to foundations for pump or compressor stations, valve spacings, access roads and airstrips, leak detection, and standby equipment and procedures for cleaning up possible leaks and spills. Special testing procedures may be required before leave-to-open orders are issued. A more comprehensive array of shutdown devices and controls will probably be required and many of these will be supported by backup or auxiliary controls.

In respect of all of these requirements, the research programs of industry and government have been absolutely basic to an understanding of the various problems of the north and the formulation of procedures designed to solve those problems. Similarly, the work of industrial committees and of the Canadian Standards Association is also most valuable. However, with all respect, it cannot be expected that industry's research and the standards can be simply accepted as a substitute for government research or for regulations to be used by the Board and other government agencies which have responsibility in respect of various aspects of northern pipe lines or northern society.

Clearly, there are some basic differences between the objectives of industry and those of government. However, I am not aware that there are insurmountable differences. The co-operation exhibited today, for example, in this present conference, indicates a strong common desire to bridge these differences and reconcile and co-ordinate the objectives.

Turning to the pipe lines themselves, we are all aware that there are important differences between oil pipe lines and gas pipe lines in respect of northern construction and operation. However, there are certain basic common features present in construction and operation and especially in social impact concerning which the Government has very special interests. Thus, there may be a common body of regulations and standards and there may be particular regulations and standards pertaining respectively to oil pipe lines and to gas pipe lines.

The Board is now involved in setting out safety regulations which, when put into effect, will apply to pipe lines under its jurisdiction in the north. The differences between oil and gas pipe lines will be recognized in these regulations. Before becoming effective, the regulations will be discussed with all interested Federal Government agencies and with industry. Such safety regulations for northern trunk lines may well be substantially identical in substance with the regulations which will be issued by the Department of Indian Affairs and Northern Development concerning any gathering pipe lines in the north which are not subject to the National Energy Board Act. However, both the Department and the Board will have special concerns because of the different nature and function of gathering pipe lines and trunk pipe lines. These special concerns may be the subject of additional requirements in the safety regulations of each.

The Board has been meeting with various groups representing prospective applicants for northern pipe lines. It has kept itself informed regarding research being conducted by Canadian industry and by governments, and members of its staff have been meeting to exchange information with representatives of companies participating in the Alyeska project. In addition, the Board's engineers have visited pipe line research sites in northern Canada, Alaska, and the U.S.S.R. From all of these contacts, the Board is convinced that pipe lines can be built and can operate with minimum undesirable impact upon the environment and the society of the north.

It is surely axiomatic that industry will not wish to invest billions of dollars in unsafe pipe lines. Hence, there is a large element of mutual interest underlying the research programs of industry and government directed to developing sound land use and pipe line regulations. As I noted earlier, there are, however, some broader aspects of public interest which must be taken into account in permitting pipe lines in the north. The guidelines, issued by the Government, referred to these with special reference to Canadian participation in such pipe lines and a requirement that they provide common or "contract" carrier service for oil or gas tendered for transportation.

This brings me to the last part of my remarks, the procedural concepts and the views of the Board as to hearing applications for northern pipe

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Procedural Concepts and the Board's Hearing of Northern Pipe Line Applications

What we must address ourselves to then is that even when all of the results of current research projects by industry and government are available and the appropriate methods of dealing with environmental and engineering problems of the north have been determined, there will still remain a large segment of the public interest which must be examined. I have referred to two such matters appearing in the Government's guidelines. A more dramatic subject would be the impact of vast expenditures on the Canadian economy, some part of which might not be beneficial unless devised to avoid adverse effects.

The construction of a large diameter pipe line from, say, Prudhoe Bay through the Canadian north to the international boundary will involve an applicant in raising well over $3 billion—possibly in the order of $3.5 billion in respect of a gas pipe line. This is substantially greater than any project previously built in Canada. You will be aware that concern has already been expressed as to the implications for the value of the Canadian dollar if, as seems somewhat inevitable, a large proportion of the financing takes place in the United States. It will be readily conceded that there would be limited public interest in the employment and other benefits of pipe line projects if these were at the expense of the continued viability of our export industries. Thus, any applicant must formulate certain financial aspects of its application after full discussion with the Department of Finance and the Bank of Canada. In the absence of this procedure, the Board would find it difficult, or perhaps impossible, to deal appropriately with this important aspect of a determination of public convenience and necessity.

Over the years the Board has found it useful to hold pre-hearing conferences with potential applicants for pipe line certificates. It may be that this practice is particularly appropriate in respect of large scale transmission lines from the north. In these instances, however, such conferences might, initially at least, be with federal agencies having specific responsibilities relating to applications for such projects. This procedure may offer a practicable method of ensuring that applications, when heard by the Board, are both complete and meaningful to industry and to government. How else can the Board be in a position to consider all aspects of the public interest in reaching its decision regarding any particular application?

Such discussions could proceed to the point where the applicant is clearly aware of the concerns of each government agency. Against this background an applicant would be able to draft a particular section of its application and possibly review this with those directly concerned. Thus, before filing an application with the Board, the applicant would know, for example, the terms and conditions of acquiring a right-of-way for its pipe line, the requirements relating to financing both inside and outside of Canada, the nature of ownership requirements, the employment aspects for northerners, etc. Conversely, the agencies would know the nature and extent of the undertakings

which the potential applicant was prepared to make and would have had opportunity to express their views as to the adequacy of the proposal.

This does not suggest that the applicant will have entered into specific agreements with any agency but rather that the applicant will know fairly precisely what the requirements of the agencies will be. It is contemplated that these requirements will be of a detailed nature and they may also be specific to a particular applicant. Clearly, this procedure will require that government agencies have a precise understanding of the requirements which they consider representative of the public interest. Equally, they will also develop an appreciation of the practical problems which will have to be faced by a company building and operating a pipe line under the conditions of those requirements.

Having obtained a clear assessment of the requirements of the various agencies of government, the applicant could then proceed with its application with the Board with some confidence that it had understood and had met the detailed requirements. In other words, "en pleine connaissance de cause."

I am asking myself—how else can the Board's hearings be complete and meaningful to industry and to government? How else can the Board be in a position to fulfill its statutory duty and consider all aspects of the public interest in reaching its conclusions as to the present and future public convenience and necessity of any particular application for a certificate to construct a pipe line through the north?

Clearly, it is by no means too early to think seriously about some of these matters. Our scientists and research organizations have recognized the challenges posed by northern pipe lines and have their programs well under way at the present time.

My colleagues and I are most impressed with the research being conducted and the knowledge which the Canadian industry has already obtained regarding construction of pipe lines in the north. The Government is on record as being desirous of allowing pipe lines, under appropriate conditions, to be constructed in the north. It is gratifying to note that the procedure of industry in Canada has been to undertake thorough research before applying for authorization to construct such pipe lines. The progress of the research, both in the public as well as in the private sector, has been such that the Government has indicated on several occasions its willingness to examine and discuss any proposals relating to the transport of Alaskan petroleum resources through Canada to market in the United States. More specifically, the Minister of Indian Affairs and Northern Development stated in the House of Commons on November 19, 1971, "We have made a lot of progress and are ready to entertain any application." Last evening, the President of the Treasury Board forcefully endorsed the Government's position.

Exhibit 23

MINISTER OF ENERGY MINES AND RESOURCES.
Ottawa, Ontario, March 28, 1972.

The Honorable ROGERS C. B. MORTON, *Secretary*
Department of the Interior, Washington, D.C.

DEAR MR. MORTON: Because of the widespread interest in northern pipeline matters at this time, you may find the following information regarding Canadian pipeline feasibility studies helpful in providing an overview of the work going on in this country. I will refer to the federal government's program and to company activities.

Several departments and agencies of the Canadian Government are engaged in a program of environmental, scientific and technical investigations designed to develop an understanding of the northern environmental and ecological balance. This work was initiated in 1968 with the establishment of the Task Force on Northern Oil Development as the Government's coordinating centre for northern oil activity. The program will provide the required information to assess pipeline applications and to set terms and conditions to ensure minimification of social disruption and adverse effects on the environment. General principles in this respect were announced in August, 1970; a copy of the pipeline guidelines established at that time is attached herewith. An annual budget of $5 million is being applied to this program, a total of $15 million having

been authorized. As has been stated publicly on several occasions, we expect to be in a position by the end of this year to be able to appraise any applications that might be received from companies wishing to build pipelines in the north.

The work underway this year involves aquatic ecological studies, hydrological studies, wildlife ecological studies, vegetation studies, topographic mapping and air photography, terrain surveys, evaluation of pipeline steel, pollution control procedures, regional socio-economic impact studies, sociological studies, and pipeline regulation preparation. The $5 million program this year calls for 126 man-years of work plus appropriate supporting services. We are pleased with the progress that has been made by the teams of experts which we have assembled for the various programs.

In addition to the programs I have identified, each of the three departments and the National Energy Board, and several other agencies including the Ministry of Transport, are conducting programs in the north relative to their specific mandates. In all, we will have at our disposal next year the types of information which we know are necessary to ensure proper route selection for pipelines and adequate standards for pipeline construction and operation.

As you would know there are three industry consortia undertaking comprehensive investigations and feasibility studies for northern gas pipelines and one for a northern oil pipeline. These groups consist of Canadian companies and subsidiaries of U.S. companies. In addition, other companies are undertaking studies relative to the transportation of gas from the Arctic Islands. Each of the four pipeline groups is including environmental, engineering, economic and sociological appraisals in its program. These groups report to us on their progress periodically and we are satisfied that the types of investigations and studies they are carrying out are well conceived and thorough and that they will provide the information required for the completion of oil and gas pipelines to acceptable standards.

The progress being made by industry is such that I would anticipate our being able to act early in 1973 to process expeditiously one or more applications to build an oil and/or a gas pipeline originating at Prudhoe Bay and traversing Canadian territory to southern markets. I think too, that the progress being made in oil and gas exploration in the region of the Mackenzie delta is such that a gas pipeline would be designed to draw from that source as well as from Prudhoe Bay while an oil pipeline application in 1973 to take delivery of oil from the Mackenzie delta region is a distinct possibility.

As the Minister responsible for the coordination of energy policy matters, I will be pleased to keep you informed of progress in exploration and pipeline appraisals in Canada. I feel our two countries have a major responsibility and challenge to meet in opening up Arctic resources. To the extent that we can improve the economics of northern operations through the sharing of scientific and technical information and the phasing of the huge capital-intensive projects involved, I welcome consultation of the kind we are scheduling for March 30.

Yours sincerely,

DONALD S. MACDONALD.

Mr. WON PAT. Thank you.

Does Counsel have any questions?

Mr. SHAFER. No.

Mr. WON PAT. The Chair would like to thank you, Mr. Seater, for your testimony.

We will now hear from Mr. Saunders Hillyer, representing the Cordova District Fisheries Union, Washington, D.C.

STATEMENT OF SAUNDERS HILLYER, REPRESENTATIVE OF THE CORDOVA DISTRICT FISHERIES UNION, WASHINGTON, D.C.

Mr. HILLYER. Mr. Chairman and Members of the Committee, I appreciate very much the opportunity to testify today. I am Saunders C. Hillyer, the Washington Representative for the Cordova

Fisheries Union—CDFU—and I am here to testify on their behalf. Before identifying the Cordova fishermen, I would like to state for the record that the positions I am expressing on behalf of their Union also have the support of the United Fishermen of Alaska and the Western Division of the National Federation of Fishermen.

Mr. STEIGER. Excuse me. I wonder if I might suggest—I had taken the opportunity to read Mr. Hillyer's statement. It is rather long and we are in the unfortunate position of anticipating a roll call. If it would be possible, I would make the unanimous consent request that Mr. Hillyer's statement appear in the record at this point and that he brief us and hit the highlights, so we might be able to get in some questions. If you don't wish to do that, there is no problem, but I am afraid we will get shut off.

Mr. HILLYER. In view of the time limitation and the length of the last witness——

Mr. WON PAT. Without objection, we will take the suggestion of the gentleman from Arizona. Mr. Hillyer, we would appreciate, of course, if you would just give us a summary of your testimony. For the record, without objection, your testimony will be incorporated in the record.

Mr. HILLYER. Yes, sir.

(The complete prepared statement of Mr. Hillyer's, above-referred to, follows:)

STATEMENT OF SAUNDERS C. HILLYER, REPRESENTATIVE OF THE CORDOVA DISTRICT, FISHERIES UNION

Mr. Chairman and Members of the Committee, I appreciate very much the opportunity to testify today. I am Saunders C. Hillyer, the Washington Representative for the Cordova District Fisheries Union (CDFU) and I am here to testify on their behalf. Before identifying the Cordova fishermen, I would like to state for the record that the positions I am expressing on behalf of their Union also have the support of the United Fishermen of Alaska and the Western Division of the National Federation of Fishermen.

I. INTRODUCTION

The Cordova District Fisheries Union is comprised of approximately 450 commercial fishermen, all of whom fish the waters in the area of Prince William Sound in southern Alaska. The oil companies that have proposed the trans-Alaskan pipeline have chosen the town of Valdez on Prince William Sound for the southern terminus of their pipeline. From Valdez, the 2 million barrels per day of crude oil would be transferred to tankers and would be carried through Prince William Sound and the Northeast Pacific to the west coast of the United States and possibly elsewhere.

The Final Environmental Impact Statement (FIS) issued by the Department of the Interior in March 1972 recognized that the economy of the Prince William Sound area depends almost entirely on commercial fishing. At present, the major product is derived from three species of salmon that spawn along the 3,000 miles of coastline in this area. In addition there is an expanding commercial harvest for tanner, Dungeness and King crab, herring, shrimp, clams and halibut. In 1969 the fishermen were paid nearly $7 million for their catches (FIS, Vol. #3, p. 370), and the Final Impact Statement further recognized that not only are these fisheries a potentially renewable resource but that presently underutilized and unutilized species could sustain additional harvests estimated to be worth an additional $4.2 million and $11.4 million to the fishermen (FIS, Vol. #3, p. 370).

The Final Impact Statement described the Prince William Sound as an area of "truly clean and untarnished beauty—teeming with marine life" (FIS, Vol.

#2, p. 216) that is used extensively by recreationists for salt and fresh water fishing, sightseeing, and photography. It elaborated that the abundant porpoises, sea otters, and sea lions, the beauty of its rugged shoreline scalloped by bays and fjords, and its backdrop of steep mountains and glaciers afford visitors a unique wilderness experience (FIS, Vol. #2, p. 216; Vol. # 3, pp. 399–402). The use made of Prince William Sound by the commercial fishermen is compatible with its wilderness character and recreational use. Although the proposed trans-Alaska pipeline would seriously damage both its commercial and recreational value, I shall restrict my remarks to the threat it poses to commercial fisheries. In addition, I will briefly mention the broader threat this marine transport system poses to the coastal waters of North America. This includes the commercial fisheries of the West Coast of Canada and the Puget Sound area of the United State, as well as pervasive and persistent destruction to all levels of the marine biosphere of these waters.

At the outset, I would like to state our position in regard to the pending legislation on the trans-Alaska pipeline and rights-of-way across public lands. Because new bills are rapidly being introduced I will not refer to specific ones. We support legislation that would (1) require a 6 to 9 month independent study of an all-land, trans-Alaska-Canada common corridor for both oil and natural gas pipelines that would deliver these resources to the Midwest and East Coast sections of the United States; (2) would request the Secretary of State to initiate discussions with appropriate Canadian officials to determine Canad's interest in such a common corridor and to negotiate with Canada mutually agreeable terms for its construction and operation; and (3) would have the results of both the independent study and negotiations with officials of the Canadian Government reported back to Congress which would then make the final choice of delivery systems. We favor an all-land route for the obvious reason that it avoids marine transport of North Slope oil through the Northeast Pacific. However, it also appears that such a delivery system would deliver these resources to those sections of the United States that most desperately need them and, finally, it appears that this trans-Canada system is technically and economically feasible.

II. ESTIMATED SPILLAGE OF NORTH SLOPE OIL

a. Regardless of its design, the marine transport adjunct to the trans-Alaska pipeline threatens pervasive destruction of North American coastal waters that would be avoided by an all-land trans-Canada oil pipeline

A trans-Canada oil pipeline would deliver approximately 2 million barrels of crude oil a day to the Midwest and East Coast sections of the United States. This would back-out an equal amount of oil that otherwise would have to be imported from abroad by tankers to East Coast and Gulf of Mexico ports. Thus, the oil pollution that would have been caused by these tankers would be avoided. More importantly, the trans-Canada pipeline would avoid entirely the pollution by North Slope oil of the Northeast Pacific, including Prince William Sound, the Gulf of Alaska, the West Coast of Canada, and the Puget Sound. Only California would continue to receive imports from South America, Indonesia, and Middle Eastern countries, and this tanker traffic would not pass north of San Francisco.

If the trans-Alaska pipeline is built, the tankerships hauling its 2 million barrel a day throughput to the West Coast and elsewhere would transform the now pristine Northeast Pacific, including Prince William Sound and the Gulf of Alaska, into one of the world's busiest oil tanker routes. In addition, the level of crude oil transported on Puget Sound would be expanded many times. At present, the refineries in the Puget Sound area receive their crude oil from Canada via an overland pipeline. If the trans-Alaska pipeline is built, this oil would be displaced by North Slope oil transported by tankerships. It is not an overstatement to say that the fate of the entire Northeast Pacific hangs in the balance on the decision to build one or the other pipeline.

There are primarily two categories of oil pollution that would result from construction of the trans-Alaskan pipeline: (1) tanker casualties, including collisions and groundings, and (2) chronic pollution caused by the effluent from the ballast treatment plant at Port Valdez.

In regard to casualties, the Coast Guard estimates that in an average year of the life of the trans-Alaska pipeline up to 140,000 barrels of oil will be

spilled. Even this disturbing figure does not capture the magnitude of the risk we are being asked to accept. The destruction of marine life that would be caused by 140,000 barrels of crude oil being spilled a little at a time over this lengthy marine transport route would be far less serious than a single supertanker casualty that could dump over one million barrels of oil in a single location.

A spill of that magnitude in a relatively confined area such as Prince William Sound or Puget Sount, two areas wheer such spills are most likely to occur, could destroy the life of those areas for long into the future.

In regard to chronic pollution, it is anticipated that the ballast treatment plant will pump 10 to 20 barrels of oil per day into Valdez Arm.

b. The proposed marine transport system may not incorporate tanker design features that would reduce the risk of oil pollution

The Secretary of the Interior has not issued stipulations governing the marine transport leg that would be attached to permits he may issue for the proposed trans-Alaska pipeline. It is doubtful that he has authority to do so. This threatens to create the anomalous situation in which the land over which the pipeline passes is theoretically protected by elaborate stipulations while the oceans, including coastal waters of the United States, are left unprotected.

Recently, Secretary Morton expressed awareness of this problem. In his testimony on June 22, 1972 before the Joint Economic Committee, he asserted that the marine transport leg of the trans-Alaska pipeline system provided an opportunity ". . . to set new and exacting standrds to govern the marine transport of American oil" and he continued to list types of regulations he had discussed with the Secretary of Transportation. One of the most important of these was the requirement that tankerships carrying this oil be constructed with double bottoms that would provide space for segregated, or clean, ballast and would afford protection against spills in the event of groundings.

It is apparent that authority for regulating tanker design and harbor control systems falls within the province of the Coast Guard and Department of Transportation. Evidently, when Secretary Morton has spoken in sweeping terms about the regulations that would govern the marine transport of North Slope oil he was alluding to regulations not yet promulgated by the Coast Guard. It is important for this committee to be aware of the current status of such regulations.

The Coast Guard's authority to regulate the design of tankers is conferred by the recently enacted Ports and Waterways Safety Act of 1972. [Pub. L. No. 92-340, 46 U.S.C., Sec. 391(a)], which, in part, directs the Coast Guard to establish standards:

"as soon as practicable . . . to improve vessel maneuvering and stopping ability and otherwise reduce the possibility of collision, grounding or other accidents, to reduce cargo loss following collision, grounding or other accidents, and to reduce damage to the marine environment by normal vessel operations, such as ballasting and de-ballasting, cargo handling and other activities."

[Section 201(7)]

Pursuant to this directive the Coast Guard issued an Advance Notice of Proposed Rule Making [38 Fed. Reg. 2467 (January 26, 1973)] which invited comments on regulations that, if proposed and then adopted, would require double bottoms and segregated ballast on tankerships entering United States waters that are delivered after January 1, 1976, or whose construction is begun after January 1, 1974.

At present the United States tanker fleet does not have the number of tankers in the 120,000 dwt (16) and 250,000 dwt class (8) that are scheduled for the transport of North Slope oil (FIS, Vol. #1, Table 4, p. 60). Therefore, if the terms of the Jones Act, 43 USCA, Sec. 883, require that the ships in this trade be constructed in United States shipyards most of them would have to be built in the future when the terms of regulations such as the one suggested by the Coast Guard would apply if they are ever officially adopted.

However, this regulation is far from official adoption. During the comment period provided in the Coast Guard's Advance Notice, the maritime industry filed comments claiming that a requirement for double bottoms would be highly detrimental to the competitive position of the United States flag merchant marine.

Moreover, the Secretary of the Interior did not avail himself of the opportunity to comment formally in favor of this regulation during the time provided by the Coast Guard. As a consequence, the future of such regulations is highly uncertain. The Coast Guard has yet to promulgate formally standards and regulations. When it did test the water last January via its Advance Notice, it elicited unfavorable comments from the maritime industry and little official support for strong regulations. In such circumstances it would be a mistake to assume that the equipment scheduled to carry North Slope oil will utilize readily available technology to reduce the risk of spills. This situation supports the Canadian overland alternative to the trans-Alaska system. It is not as though we are forced, for lack of a viable alternative, to subject the coastal waters of North America to the risks created by the proposed marine transport system.

III. ESTIMATED DAMAGE TO COMMERCIAL FISHERIES AND OTHER FORMS OF MARINE LIFE

a. Final Environmental Impact Statement

The Final Environmental Impact Statement did not attempt to quantify, or to express in monetary terms, estimated damage to marine life. In part this omission reflected the difficulty in predicting the frequency, volume, location and timing of oil losses which would occur along the proposed route (FIS, Vol. #4, p. 196). But it listed two other constraints: "(1) basic information concerning many types of oil toxicity mechanisms is incomplete" and (2) "existing information upon biotic resources is often insufficent for analytical use." (FIS, Vol. #4, p. 196) Rather than explore ways that such large gaps in relevant information could be partially filled through further research and rather than estimate how long such a research effort would take, the Final Impact Statement employed the following methodology. It attempted to inventory the marine resources along the tanker route and to describe qualitatively the effect of oil pollution on them. This attempt was seriously impeded by uncertainties about the long lasting effects of oil spills. In effect, the Final Impact Statement took the position that the destruction to marine life along the marine route would fall between something—unquantified—and illimitable destruction.

Only in regard to chronic pollution in Valdez Arm was the Impact Statement specific. It found that this chronic pollution could cause a loss to salmon fishermen of $400,000 a year (FIS, Vol. #4, p. 571).

Casualties in other parts of the Sound could cause losses of "maximum magnitude" (FIS, Vol. #4, p. 433). Chronic pollution and oil spills would "affect adversely" the herring egg industry which is "particularly vulnerable to the effects of oil pollution" and brings in over a quarter of a million dollars per year to fishermen in the Prince William Sound area (FIS, Vol. #4, p. 471).

The shellfish harvest in Port Valdez could be "restricted and perhaps lost entirely for unknown lengths of time due to a combination of lower quality and quantity, the conflict between fishing operations and vessel traffic, and possible closures to fishing due to the health hazard of tainted product" (FIS, Vol. #4, p. 572).

Similarly,

"More than $200,000 annually is paid to fishermen in the Prince William Sound area for their harvest of crabs and over $10 million to fishermen of crabs landed in British Columbia, Washington, Oregon, and California. Spills of crude oil could result in closure of both sport and commercial crab fishing." (FIS Vol. #4, p. 572).

The salmon harvest south of Prince William Sound was worth about $58 million to fishermen in 1969. This resource would likely, "suffer some damage from pollution associated with the pipeline" (FIS, Vol. #4, p. 433). A similar prediction is made for clams, oysters, and Dungeness crabs south of Prince William Sound which bring the fishermen $17 million annually (FIS, Vol. #, p. 436).

In regard to the Gulf of Alaska, the Impact Statement indicates that the intentional discharge of ballast water and accidental spills "could be a definite threat to the marine ecosystem" (FIS, Vol. #4, p. 542). Since the currents in the Gulf of Alaska would circulate any spilled oil, "it could affect areas far distant from the original discharge site" (FIS, Vol. #4, pp. 542-543).

In addition to effects on commercial fisheries, chronic pollution and oil spills in Prince William Sound, "would have permanent and far-reaching effects upon certain forms of plankton, particularly plankton larvae provided by benthic organisms. These effects would be manifested in a general decrease in primary productivity which would, in turn, affect other parts of the marine ecosystem" (FIS, Vol. #4, p. 543). The Impact Statement states that this tye of loss could also be significant in destination port areas (FIS, Vol. #4, p. 543). And even a temporary loss of production due to an oil spill could have a devastating effect on salmon and other species" (FIS, Vol. #4, p. 544).

In regard to sea otters and fur seals the Impact Statement is definite:

"The direct effect of low level pollution from the Port Valdez ballast treatment effluent and from tank cleaning operations at sea would very likely kill sea otters. Any sea otter coming in even passing contact with the spill of more than a few barrels would die, and it is likely that fur seals would also." (FIS, Vol. #4, p. 548).

b. Recent information on the extent and persistence of oil pollution:

On February 13, 1973, the Department of Commerce issued a press release and a study by the National Oceanographic and Atmospheric Administration (NOAA) entitled *Fish Larvae Found In Environment Contaminated With Oil And Plastic.* This modest sounding study reveals that oil pollution is distributed far more widely in the Atlantic Ocean than had previously been suspected by the United States government. The NOAA researchers found that:

"Oil globules . . . in massive proportions infect nearly 700,000 square miles of blue water from Cape Cod to the Caribbean Sea, becoming part of the habitat of uncountable numbers of newborn blue marline, tuna, bluefish, and other prized game and commercial species.

'One of the survey ships, ALBATROSS IV, reported than 75 percent of the time its nets were befouled by oil clumps so thick they extruded through the mesh 'like spaghetti.' All three [research] vessels, though widely separated, experienced similar conditions.

'Subsequent laboratory analyses revealed that more than half the plankton samples (young fish and their food) collected from surface waters were oil-contaminated. It was estimated that contamination covered 50 percent (80,000 square miles) of the survey area along the East Coast Continental Shelf; 80 percent (280,000 square miles) of the survey area in the Caribbean to the Gulf of Mexico; and 90 percent (306,000 square miles) of the survey area north of the Antillean Chain, extending roughly 500 miles north and south of the coasts of the Bahamas and the West Indies."

Scientific research such as that undertaken by Dr. Max Blumer at the Woods Hole Oceanographic Institute indicates that the toxic fractions of oil spilled in ocean waters persist and accumulate in marine environments for long periods. At present the cumulative effects of such spills on all stages of marine life is poorly understood. However, the study recently released by NOAA establishes that oil pollution is a worldwide problem of vast proportions. Construction of the trans-Alaska pipeline would needlessly add to the problem and possibly subject the Northeast Pacific Ocean to the same fate as has been met in the Atlantic Ocean.

IV. LIABILITY

If the trans-Alaska pipeline is to be built, an undertaking strongly opposed by the commercial fishermen I represent, then an important question is raised concerning the liability to those fishermen for damage to their fisheries. Since North Slope oil is regarded as a national asset that can partially satisfy the United States mushrooming demand for oil, it would be unfair to force the fishermen to bear a disproportionate share of the cost of its production and transportation to market. The trans-Alaska pipeline threatens both the fishermen's gear and the fish resource itself. The value of these fisheries may be substantially reduced and in some cases eliminated altogether.

We therefore urge the Congress to impose on the owners and operators of the trans-Alaskan pipeline and marine transport system absolute liability to commercial fishermen for damage to the value of their fisheries and fishing gear that results from pipeline operation and the marine transport of North Slope oil.

V. CONCLUSION

For the reasons set out in sections I through III, above, the Cordova District Fisheries Union, the United Fishermen of Alaska, and the Western Division of the National Federation of Fishermen oppose the proposed trans-Alaska pipeline and support the alternative of a common corridor across Canada for both an oil and natural gas pipeline that would deliver North Slope oil and natural gas to the Midwest and East Coast sections of the United States. We endorse pending legislation that would authorize independent studies of the Canadian alternative and would expedite negotiations with the government of Canada. We are confident that such studies and negotiations will further recommend the trans-Canada alternative.

Mr. HILLIER. I represent fishermen who have a rather obvious interest in the Trans-Alaska pipeline, specifically the Cordova fishermen fishing the waters of the Prince William Sound, which is the site of the marine terminal for the proposed Trans-Alaskan pipeline.

They are concerned with the impact of the transport of oil on their fisheries.

I will skip through the statement. At the outset, I might say we support legislation—I am not going to refer to specific bills as so many have been introduced and they are still coming in—but we support legislation that would require a 6 to 9 months' independent study by the National Academy of Sciences or National Science Foundation, and would at the same time request the Secretary of State to undertake negotiations with appropriate channels of the Canadian Government to determine its position on the possibility of the Trans-Canadian: and, thirdly, return the results of the independent study and negotiations to the Congress, which would make the ultimate decision.

What I would like to do, having stated the basic position of legislation, is to describe briefly what the threat is to the fisheries as posed by the Trans-Alaska pipeline.

First, the 2 million barrels a day throughput of the Alaskan pipeline will increase the threat to the oceans considerably. If the Canadian pipeline were built in its place, the amount of oil imported into the United States would be considerably diminished. The oil borne by tanker ships coming to the east coast and Gulf of Mexico would be less by 2 million barrels a day. But of more direct interest to the Cordova fishermen is the marine transport through Prince William Sound and the northeast Pacific would be avoided.

It is our position, regardless of the design of tanker ships, there will be considerable spillage of oil. The final impact statement reveals that the Coast Guard has stated through tanker ship casualties alone 140,000 barrels a year could be spilled. As disturbing as that figure is, it does not capture the risk that we are being asked to accept, because the super tankers are slated for use and the impact statement says there are eight supertankers in the 250,000-ton class scheduled for use.

If one of those meets a Torey Canyon type fate, over a million barrels would be dumped at one location and that would have far greater impact than 140,000 barrels spilled a year.

There is a chronic pollution problem at the Valdez treatment plant and the Valdez arm will have an impact on the fisheries.

The second thing, I urge Congress not to act as though the best tankership equipment available will be incorporated in the marine transport system because there is no basis for such a sanguine approach. I think one of the safety measures of principal benefit would be double bottoms, which would avoid the use of dirty ballast water and chronic pollution and would afford some protection in the event of ground use.

The Secretary of the Interior has before congressional committees said he and the Coast Guard have been discussing requiring double bottoms but it is important for this committee to realize thus far they are not required. The Secretary of the Interior himself doesn't have the authority and the Coast Guard has suggested regulations which would require, but has not officially promulaged, much less adopted, them. So at present there are no requirements at all, save equipment be used.

In my statement, I have extracted from the final impact statement the potential and estimated damage to the fisheries. I might say that not only are the fish resources themselves endangered, but all stages of marine life are also endangered, and that the best evidence indicates that the poison test or toxic effects of oil accumulate in the marine environment for a long time and the effect of this accumulation is at present poorly understood.

I wanted to insert into my statement—I will submit this for the record of the hearing—another page inserted as part IV, which discusses the lack of a capability to control the oil pollution and its effect if this pipeline is okayed. One of the experts who commented on the environmental statement outlined a three-step procedure that would be necessary before the effects of this oil pollution could be controlled. I will submit that to the record, also.

Mr. WOX PAT. The additional statement will be incorporated in the record without objection.

(The information above-referred to was not received when the hearings were printed.)

Mr. HILLYER. So these are the main areas of my testimony. I also summarized the value of the fisheries to the Cordova fishermen. The amount of oil pollution that is estimated by the final impact statement that will result in the Trans-Alaska pipeline. I doubt at the present time the best tanker shipping equipment available will be used and there is no regulation for requiring its use, the lack of capability to control the effects of oil pollution once this problem is undertaken, and, finally, I would like to mention all of the fishermen oppose the Trans-Alaska pipeline.

If it is built, they would like to have some provisions attached to any permit the Secretary of the Interior may issue that would require indemnification of third parties, particularly fishermen, for any damage to their fisheries and sources.

Thank you.

Mr. WOX PAT. Mr. Hillyer, I noted that your organization is essentially taking the same position as the environmentalists. The previous witness, Mr. Seater, said your people are opposed to the Alaskan pipeline and you favor, of course, the Canadian pipeline for the same basic reason.

Mr. HILLYER. For the obvious reason it avoids pollution of the fisheries.

Mr. WON PAT. I can understand that. But you mentioned, of course, something that I think is important in the consideration of this committee, and that is to have what I call legislation of a third party be involved for indemnification. Even when the Trans-Alaska pipeline is constructed——

Mr. HILLYER. Yes, sir.

Mr. WON PAT [continuing.] There should be some proviso to indemnify the fishermen who may be involved.

Mr. HILLYER. Yes, sir. If it is built, we would very much like to see that indemnification.

Mr. WON PAT. The gentleman from Arizona.

Mr. STEIGER. Thank you, Mr. Chairman.

Mr. Hillyer, as I understand it, there is currently some Prince William Refinery shipment of oil to Japan, and natural gas?

Mr. HILLYER. No, sir.

Mr. STEIGER. I thought it was from Cordova?

Mr. HILLYER. No, sir.

Mr. STEIGER. Cook Inlet, then, I believe, I am informed is the location of the existing refinery and natural gas outlet for marine shipment to Japan. Is that correct?

Mr. HILLYER. I don't know. I don't represent them.

Mr. STEIGER. Do you know if there is any fishing in Cook Inlet?

Mr. HILLYER. What little I know about Cook Inlet is what I have seen by way of comparison to Prince William Sound. The inlet has been described as a desert and Prince William as a jungle of marine systems. Beyond that, I don't know anything.

Mr. YOUNG. If the gentleman will yield, there is a large fishery in Cook Inlet, not nearly as big as Prince William Sound. Cook Inlet is a quick, flushing inlet and silt polluted inlet. I just came back from there and they are catching 47–48 and 52-pound salmon. So there is a considerable fishery in Cook Inlet.

Mr. STEIGER. I won't attempt to minimize the concern of the fishermen or anticipate that they had nothing to worry about, because I don't have the expertise. In fact, I will stipulate there will be a problem.

I would ask as a question, in the event that Trans-Alaskan route is approved and your suggestion of specific input by the fishermen with regard to permits is accepted, which I think it should be on its face, do you feel that the existing course in the courts to damage by the fishermen is sufficient to protect them in that event?

Mr. HILLYER. That is a difficult question. I think if the owners and operators of the pipeline and marine transport system are made absolutely able to know negligence has to be shown on the part of the manufacturers. fishermen damaged by spills of oil, that they can recover for the damages, they can prove to their fisheries resources. I think there is a real problem in many cases in proving the damages. I think it is doubtful they will be fully compensated for the damages to their fisheries.

But to the extent they can prove a connection between oil spills and damage, I believe under existing law they could recover.

Mr. STEIGER. I do recall in the case of Santa Barbara spill, while there were no fishermen involved and I suspect it was similar to establish the damage in this instance, but the beach owners, for example, were reimbursed the full extent of their claims as nearly as I can recall.

My question was, if you had addressed yourself to the possibility of some legislative language that would sufficiently protect the recourse rights of the fishermen. I suspect it would be very difficult to circumvent the necessity for them to establish the damage. I think we would have to retain that. But if you thought there was some special language needed, I am sure the committee would be happy to entertain such language. If you come up with it, if you furnish it to counsel, we would be most grateful.

Mr. HILLYER. I would like to take that opportunity and do so. Right now, what I would say is absolute liability is a good first step. But I will submit language to the committee staff.

Mr. STEIGER. We appreciate that.

Thank you, Mr. Chairman.

Mr. WON PAT. Mr. Young.

Mr. YOUNG. Mr. Chairman, I thank the gentleman for testifying. I know the Cordova fishermen and know also the view of UFA—United Fishermen of Alaska. You said you didn't represent the Cook Inlet area of Alaska. United is a new organization, newly formed. I was there during the formation. I worked with the fishermen in the State legislature. I understand the reason they have endorsed the Cordova fishermen's objection to the pipeline is for unity, but when the statement is made that all fishermen are against the pipeline, it is not exactly true.

I respect Cordova fishermen.

There is one thing, I believe I was the first one to bring to the attention of Prince William Sound the danger to the public before the pipeline was even proposed. Before the proposed route was thought of, we went to the Prince William Sound Senate and we discussed it. It doesn't flush itself. There is a danger.

I also believe we have the ability to overcome that danger.

You mentioned the double-hold ships as far as ballast recycling unit. I think we can improve that.

The other thing is your testimony on liability. The State has a law now, I believe, passed just a year ago—2 years ago—on third-party liability concerning spillage, concerning the fishing area. This is a State law and it may not be as strong as we may want to go, but it is pretty strong. We might want to look at that as far as the wording.

Mr. HILLYER. Certainly.

Mr. YOUNG. No questions. I just think your testimony is good and I think you have a valid worry. I think we have the ability to overcome that worry.

Mr. WON PAT. Thank you.

Does counsel have any questions?

Mr. SHAFER. No.

Mr. WON PAT. Mr. Hillyer, we want to thank you on behalf of the committee for your fine testimony. And at the suggestion of the gentleman from Arizona, please make the material available any time for the committee.

Mr. HILLYER. Thank you.

Mr. WON PAT. The Chair wishes to announce the next hearing on this matter will be held on June 7.

At this time, there being no further business before the committee, the Chair declares the hearing adjourned.

Thank you.

[Whereupon, at 12:30 p.m., the committee adjourned, to reconvene on Thursday, June 7, 1973.]

OIL AND NATURAL GAS PIPELINE RIGHTS-OF-WAY
PART II

THURSDAY, JUNE 7, 1973

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON PUBLIC LANDS
OF THE COMMITTEE ON INTERIOR AND INSULAR AFFAIRS,
Washington, D.C.

The subcommittee met, pursuant to notice, at 10 a.m., in Room 2359, Rayburn House Office Building, Hon. John Melcher presiding.

Mr. MELCHER. The subcommittee will come to order.

The Public Lands Subcommittee is ready to begin today its 11th day of hearings into legislation centering around the trans-Alaska pipeline.

We have tried to develop a full and complete record. However, there still are unanswered questions.

These hearings, for one thing, have produced a sincere belief among some Members of Congress and other individuals and groups that the United States would be better served by a trans-Canadian pipeline than the trans-Alaska pipeline.

However, for the subcommittee to even evaluate it, if it is necessary to compare a Canadian route, we must have more information. On June 1, I wrote Secretary of State William P. Rogers, posing a series of questions which need definite answers.

At this point, I will insert my letter to Secretary Rogers in the record, if there is no objection.

Hearing no objection, so ordered.

[The Chairman's letter to Secretary Rogers, above-referred to, follows:]

COMMITTEE ON INTERIOR AND INSULAR AFFAIRS,
U.S. HOUSE OF REPRESENTATIVES,
Washington, D.C., June 1, 1973.

HON. WILLIAM P. ROGERS,
Secretary of State,
Washington, D.C.

DEAR MR. SECRETARY: As you are undoubtedly aware, this Subcommittee is considering legislation to authorize construction of a Trans-Alaska oil pipeline. Legislation authorizing such construction is strongly supported by the Administration.

In connection with this legislation, Under Secretary Casey appeared before the Subcommittee on April 18 and testified regarding past discussions with the Canadian government concerning the possible construction of alternative pipelines through Canada. The Under Secretary's statement was to the effect that the Canadian government was not yet in a position to negotiate with the United States on the matter of pipelines from the artic, but that it had publicly stated that it expects to be prepared later this year to accept applications for consideration. The Under Secretary further stated that the Government of

Canada had not yet established definitive guidelines and that such guidelines would not be published pending settlement of native claims and other related matters now pending or to be settled in Canadian courts.

Other witnesses have attributed a much more favorable and optimistic attitude to the Canadian government regarding both the probability of construction and the time required to complete a Canadian line.

Some of the more significant issues before the Subcommittee involve not only the general attitude of the Canadian government regarding the construction of these lines, but also the matter of timing. While the Canadian government may favor construction of the lines, this Subcommittee needs to have some indication of the time that may be involved before actual construction could be started, and the probable time involved in construction. In addition to possible delays due to native claims or environmental issues, questions have also been raised regarding the degree of control the Canadian government would want to exercise over the line, and its ability to engage in the construction of a crude oil line more or less simultaneously with the construction of the more commonly discussed MacKenzie Valley natural gas line.

The Subcommittee will appreciate your assistance in obtaining from the Canadian government the status of its most recent thinking concerning these matters.

Due to the urgency of the energy problem and the high priority attached to this matter by the Administration, your earliest discussion with the Canadian officials would be sincerely appreciated. The Subcommittee will await your reply.

Kindest personal regards.

Sincerely,

JOHN MELCHER,
Chairman, Subcommittee on Public Lands.

Mr. MELCHER. We need this information and expect a prompt reply from the State Department, and we will hold the record open for as long as is necessary to get the definitive answers from the State Department.

The questions which need answering include:

1. Does the Canadian Government want the pipeline?

2. How long a delay in the start of pipeline construction would be expected because of a controversy with Canadian natives over land claims compensation and settlement?

3. What time frame would we be talking about before actual construction of the line could begin, plus the actual construction schedule?

[The record was held open and letters dated June 22 through July 17, were received from the State Department. The letters follow:]

DEPARTMENT OF STATE,
Washington, D.C., June 22, 1973.

HON. JOHN MELCHER,
Chairman, Subcommittee on Public Lands, Committee on Interior and Insular Affairs, House of Representatives.

DEAR MR. CHAIRMAN: As requested in your letter of June 1, we have discussed with responsible Canadian officials those questions raised by you concerning the possible construction of an oil pipeline from Northern Alaska through Canada. These discussions have confirmed our earlier assessment that there is no alternative to the proposed Alaskan pipeline at this time. Even if the Canadian Government should move expeditiously to approve such a pipeline, which is unlikely, an Alaskan pipeline could be in operation at least 3–5 years, and perhaps 7–10 years earlier than a Canadian pipeline.

Negotiations by the United States of a pipeline agreement with Canada does not appear possible at this time. The Canadian Government has consistently taken the position that it is not prepared to negotiate with the U.S. Government on the matter of pipelines from the Arctic. We know of no change in his position. The Canadian Minister for Energy, Mines and Resources said in May,

1972, that the Government would be ready to examine applications by commercial firms for pipeline construction by the end of that year. The Canadian Government now indicates that it will not be ready to examine applications until the end of this year. This date could slip further.

Definitive guidelines have not yet been published for companies desiring to undertake pipeline construction. On May 16 the Northwest Territories Supreme Court put a freeze on all land transactions in the area to be transited by a pipeline until certain issues related to native claims are determined. Our most recent inquiries and remarks by Canadian officials give no cause to change our view that the Canadian Government has no strong current interest in the construction of a Mackenzie Valley oil pipeline. Insufficient oil has been found in the Canadian Arctic up to this time to justify early approval for construction in the face of political, environmental and economic arguments against approval. The seming ambiguity of Canadian policy on an oil pipeline through Canada, in our judgment, partly is a reflection of the Canadian Government's desire to make sure that Canadian concern over a possible tanker route to Cherry Point is fully appreciated by the United States.

Most members of the Gas/Arctic consortium and Canadian Government officials believe that 1980 is a realistic year to expect the completion of a gas pipeline from Alaska down the Mackenzie Valley—provided that an application is filed this year and a minimum of delay is experienced in obtaining its approval and beginning construction activities. All agree that approval and construction of an oil pipeline would take an appreciably longer time. At least 12–18 months of intensive work would be required to prepare an application for an oil pipeline based on the preliminary feasibility study prepared by MacKenzie Valley Pipeline Research Ltd. The line would be over twice as long and twice as costly as the proposed Alaskan pipeline. The time required for construction would inevitably be longer. While both an oil and gas pipeline application might be examined at the same time, few in the industry or the Canadian Government believe it will be possible to initiate work on both projects at the same time. Financing, including currency transfer problems, and the availability of labor, specialized equipment and pipe are contributing factors.

Canada has consistently maintained that it must retain operational control of the Canadian portion of any pipeline. Canadian officials also have stated that a basic requirement of any pipeline project would be to give opportunity to Canadians to acquire 51 percent ownership. All of these factors and the current political environment in Canada strongly argue that a decision to permit the construction of an Arctic oil pipeline through Canada is likely to be long delayed.

I hope the above is responsive to your request for information. We would be happy to send knowledgeable officials to meet with you or others in the House to provide more detailed information.

Sincerely,

MARSHALL WRIGHT,
Assistant Secretary for Congressional Relations.

JUNE 27, 1973.

HON. JOHN MELCHER,
Chairman, Subcommittee on Public Lands, Committee on Interior and Insular Affairs, House of Representatives.

DEAR MR. CHAIRMAN: To Supplement my letter of June 22 and as requested in your conversation of yesterday with Under Secretary Casey, there are outlined below the views of Canadian officials consulted recently concerning native claims which have a bearing on the construction of an oil pipeline from Alaska through Canada. The current status of these claims is described, together with Canadian estimates concerning the time required for their settlement. Finally, I have included our assessment of these views as of interest to you and your colleagues.

Canadian officials consulted state they believe that native claims will constitute no serious barrier to the construction of pipelines through Arctic areas. They do estimate that negotiations with non-treaty Indians in the Yukon, now getting underway, will take about two years. They maintain,

however, that these negotiations will be limited to compensation and will, in their judgment, constitute no impediments to granting right-of-way for pipelines. Indians along the Mackenzie Valley, with rights under Treaties 8 and 11, are entitled to land settlement but have yet to select land. Canadian officials maintain that, even if these Indians should select land along the right-of-way, treaties permit the Canadian Government to take land for projects in the public interest on provision of substitute acreage and compensation for any improvements.

Other Canadian opinion, however, holds that existing and expected future native claims could delay Government consideration of pipeline applications or pipeline construction for many years. The May 16 ruling of the Northwest Territories Supreme Court, which put a freeze on all land transactions in the area which would be transited by a pipeline until certain issues related to native claims are determined, appears to challenge government assumptions that legal precdent will uphold its alleged rights under Treaties 8 and 11. It is also known that other legal challenges are contemplated by Indian groups or parties acting in their behalf. The basis for these challenges are not known to the Department.

In these circumstances, the Department of State believes that it would be imprudent to accept at face value flat assertions that native claims will not significantly delay consideration of Arctic pipeline applications or actually delay construction of pipelines through areas where native rights exist, either through treaty obligations or under Canadian law. In our judgment, we must assume that native claims could raise serious problems and cause considerable delay to the early construction of an oil pipeline from Alaska through Canada.

I hope that the above information is of use to you.

Sincerely,

MARSHALL WRIGHT,
Assistant Secretary for Congressional Relations.

COMMITTEE ON INTERIOR AND INSULAR AFFAIRS,
U.S. HOUSE OF REPRESENTATIVES,
Washington, D.C., June 29, 1973.

MEMORANDUM

To: All members, Committee on Interior and Insular Affairs.
From: Hon. John Melcher, chairman, Subcommittee on Public Lands.
Subject: Supplemental letter from the Department of State in further response to Chairman Melcher's inquiries to Secretary of State Rogers (relating to the proposed oil pipeline).

Attached, you will find a letter dated June 27, 1973, from the Department of State, which is a supplement to that Department's letter of June 22, in response to a June 1st letter directed to Secretary of State William P. Rogers, concerning Canadian views on a proposed trans-Canadian oil pipeline.

DEPARTMENT OF STATE,
Washington, D.C., June 27, 1973.

Hon. JOHN MELCHER,
Chairman, Subcommittee on Public Lands, Committee on Interior and Insular Affairs, House of Representatives.

DEAR MR. CHAIRMAN: To supplement my letter of June 22 and as requested in your conversation of yesterday with Under Secretary Casey, there are outlined below the views of Canadian officials consulted recently concerning native claims which might have a bearing on the construction of an oil pipeline from Alaska through Canada. The current status of these claims is described, together with Canadian estimates concerning the time required for their settlement. Finally, I have included our assessment of these views as of interest to you and your colleagues.

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Mackenzie Valley, with rights under Treaties 8 and 11, are entitled to land settlement but have yet to select land. Canadian officials maintain that, even if these Indians should select land along the right-of-way, treaties permit the Canadian Government to take land for projects in the public interest on provision of substitute acreage and compensation for any improvements.

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I hope that the above information is of use to you.

Sincerely,

MARSHALL WRIGHT,
Assistant Secretary for Congressional Relations.

COMMITTEE ON INTERIOR AND INSULAR AFFAIRS,
U.S. HOUSE OF REPRESENTATIVES,
Washington, D.C., July 9, 1973.

MEMORANDUM

To: All members, Committee on Interior and Insular Affairs.
From: Hon. John Melcher, chairman, Subcommittee on Public Lands.
Subject: Supplemental letter from the State Department with further information on Canada's position dealing with an oil pipeline through Canada.

Attached you will find a copy of the most recently received letter from the Department of State dealing with an oil pipeline through Canada and Canada's position on the subject.

DEPARTMENT OF STATE,
Washington, D.C., July 7, 1973.

Hon. JOHN MELCHER,
Chairman, Subcommittee on Public Lands, Committee on Interior and Insular Affairs, House of Representatives, Washington, D.C.

DEAR MR. CHAIRMAN: You will recall that my letters of June 22 and 27 responded to your request of June 1 that we undertake renewed discussions with Canadian authorities concerning the possible construction of an oil pipeline from northern Alaska through Canada. On instructions from the Department, our Embassy in Ottawa did undertake such discussions and reported on them to the Department by cable. The Embassy's cabled report provided the basis for the views set forth in my letters of June 22 and 27.

In carrying out the Department's instructions, the Embassy posed a number of specific questions to Canadian officials. We have now received from the Embassy written responses to these questions prepared by the appropriate Canadian officials. They set forth in more detail matters which were summarized in my letters to you. I enclose the text of these Canadian responses as of possible interest to you. I believe they bear out our judgment that an oil pipeline to the Alaskan route in terms of the time frame which circumstances require.

We have also just received the text of a speech made on June 20 by the Canadian Minister of Energy, Mines and Resources in which he outlines in some detail the complexity and magnitude of the questions the Canadian Government

would have to face in considering a possible Mackenzie Valley oil pipeline. I believe this latest statement further confirms the position we have taken. I enclose a copy of the text.

Sincerely,

MARSHALL WRIGHT,
Assistant Secretary for Congressional Relations.

Enclosures:

1. Copy of Canadian responses.
2. Copy of speech by Minister Macdonald.

Question. What is the current status of relevant Canadian environmental studies? What is the expected date of their completion?

Answer. The Government's environmental social program calls for the publication, as they become available, of 121 reports on all phases of environmental and social concern as related to northern pipelines; of these 39 reports have already been published by Government and an additional 16 by others. It is expected that the complete material thus assembled will place the government in position to adequately assess an application for a pipeline by the end of this year.

Industry has indicated that they expect to file an application for a gas pipeline at the end of 1973 or shortly thereafter.

Question. What is the status of consideration of native claims? What is the expectation as to time required for their settlement?

Answer. The Indians of the Mackenzie Valley are signatories to Treaties 8 and 11. The Government's obligation under these Treaties has as yet not been fully met; the Government has affirmed that it will meet these obligations and toward this end has offered to set aside the necessary lands. However, recent indications are that the NWT Indian Brotherhood is preparing to advance claims over and above that specified by Treaty. In this respect, the Brotherhood has attempted to file a caveat to protect lands they deem to be covered under the Treaties. The matter is now before the Territorial Courts. The Government has accordingly presented its case, alleging that the caveat by its nature is not registerable. It is expected that the resolution of this specific issue will take a number of months. Although the caveat, if registered, would not apply to mining and oil rights, it could affect the granting of a pipeline right-of-way. At the moment it is not clear how and within what time frame this matter could be resolved, should the problem arise.

In the Yukon Territory no treaties are in effect. The Government is, however, in the process of negotiating native claims (Indian and Métis) and indications are that a settlement could possibly be reached there within the next two years.

Depending on the route chosen, the pipeline could pass through areas of the Mackenzie Delta where the Inuit (Eskimos) may have certain land claims. These have not as yet been fully defined and the Government has made available funds to the Inuit Tapirisat for further research.

In summary, indications are that settlement in the Yukon could be achieved within approximately two years, during which time the application could be heard and construction commenced. The situation regarding the Native Brotherhood in the NWT is not yet sufficiently clear to allow a precise statement; and considerable research must still be carried out before Inuit claims become fully defined and therefore negotiable. It is the Government's intention to proceed with northern development in the best interests of Canada, as a whole, but at the same time the Government is determined to ensure the just settlement of native claims.

Question. What is the Canadian Government's position likely to be with regard to ownership and control?

Answer. Speaking on this point in the House of Commons on May 22nd, 1973, Minister Macdonald said

> "Mr. Speaker, I have indicated that the objective of the government would be to give an opportunity to Canadians to acquire 51 per cent ownership in any such pipeline and the expectation that it would remain under Canadian control."

In addition, all interprovincial and international pipelines are under National Energy Board control.

Question. When will the Canadian Government be ready to give active consideration to proposals from the private sector?

Answer. In respect of a gas pipeline, Minister Macdonald said on May 23rd, 1973, in the House of Commons

> "Of course, the law has always been there with regard to the making of an application, but we have indicated within the past 12 months that we are completing our studies for the purpose of evaluating such an application and that we expect about the end of this year to be in a position to evaluate any application that comes forward. For that reason we have not issued any invitation to any specific group, but we have indicated that we are in a position to deal with such an application under the law."

In respect of an oil pipeline the above statement still applies. However, it should be noted that the Canadian Government has not received an application for construction of such an oil pipeline in the north nor is it apparent that any company or any group of companies is preparing to make such an application in the near future.

Substantial work has been completed by Mackenzie Valley Pipe Line Research Limited and much of this work relates to environmental and social matters. However, there undoubtedly would be additional work required by a prospective applicant in respect of environmental considerations. Additional work on details of engineering design would also be required, although these could proceed concurrently with environmental work.

Question. What would the process of consideration entail (e.g.—public hearings and a finding by the National Energy Board prior to consideration by the Government and Parliament) and how long a time would it likely require?

Answer. An application to build an oil pipeline would be heard by the National Energy Board which would then make its findings known to the Government. If the National Energy Board rejects the application, no further action is required by the Government. However, if the National Energy Board recommends approval of the application, the final decision must then be made by the Government. There is no legal requirement to refer to Parliament either the National Energy Board finding or the decision of the Government.

Further, the Minister of Indian and Northern Affairs, the Honorable Jean Chrétien has announced that upon receipt of an application for a pipeline right-of-way, an Inquiry will be held under the Territorial Lands Act with the purpose of assessing the regional socio-economic and environmental implications arising out of the construction and operation of a major pipeline in the Territories. These hearings will be held in addition to those under the National Energy Board Act described above.

The time required for a National Energy Board hearing for an oil pipeline is unknown at this time, but might take perhaps up to one and a half years, including time required to arrange financing. The hearings by the Department of Indian Affairs and Northern Development would also be concluded within that time period.

Question. Are there significant Provincial/Federal differences which are likely to delay an eventual Canadian decision? To what extent would differences of view between eastern and western Canadians obstruct or delay decisions?

Answer. A northern oil pipeline would be a "federal work". As such, the Provincial Governments are not legally involved. The National Energy Board Act grants to a successful pipeline applicant the right to expropriate lands, including Provincial Crown Lands, if such are necessary to complete the project.

Question. What is the status of Canadian governmental consideration of a possible Mackenzie Valley gas pipeline?

Answer. The answers given above gave the status of the Canadian Government's environmental work in connection with a possible gas pipeline. It should be noted that under the Task Force on Northern Oil Development, six committees have been established and work has been in progress in most of these committees for a number of years. The Advisory Committee on Northern Pipeline Financing was established in early 1973 and results from its considerations should be available by the time an application to build a gas pipeline could be filed.

Question. Would active Canadian consideration of a Meckenzie Valley oil pipeline delay consideration of the prospective application for a gas pipeline? Are there proponents in Canada of the gas pipeline who oppose encouragement of Mackenzie Valley oil pipeline on these grounds?

Answer. Canada would likely wish to avoid the necessity of building both an oil pipeline and a gas pipeline simultaneously because of the impacts upon the Canadian economy. If it is decided to proceed with active consideration of the

Canadian oil pipeline, it is likely that the question of building a gas pipeline would be deferred, for reasons of gas supply to such a pipeline. This is based on the assumptions that some 50 per cent of the gas supply would be solution gas from the Alaska North Slope. If an approval to build a Canadian oil pipeline was granted and if the Canadian Government did not wish to have the gas pipeline build simultaneously, it is possible that the construction of the gas pipeline could be delayed by some three years compared with the decision to build the Alyeska oil pipeline.

Question. Any other observations deemed relevant?

Answer. There are a number of other elements to the Canadian position in respect to the northern oil pipeline:

(1) Canada does not now have commercial oil discoveries in the north, although the prospects are rated very high. There could be some 100 to 150 Mbd of natural gas liquids, if the gas pipeline is constructed.

(2) The Government guidelines on northern pipelines are clear in stating that Canada requires that Canadian production has "access" to such pipelines. Undoubtedly such access would be achieved by adding pipeline capacity rather than "backing out" non-Canadian supplies. Thus Canada does not require any fixed percentage of the through-puts of either a gas pipeline or of an oil pipeline.

(3) There would seem to be no reason why the United States would need a "treaty" or agreement with Canada to cover such pipelines which would cross Canadian territory and carry U.S. supplies to U.S. markets. In this connection, the Canadian Government notes that both loops of the Interprovincial-Lakehead pipeline system cross the United States and that throughputs of these loops are vital to Ontario oil markets. The Montreal oil market is entirely dependent on the Portland-Maine to Montreal pipeline. In addition, approximately half of the Canadian gas markets, east of Manitoba, depend on the Great Lakes pipeline which crosses the United States. None of these important pipelines, across United States territory is covered by "treaty" or international agreement.

(4) Canada continues to view with alarm the prospect of larger tanker movements into the Puget Sound area of the Pacific northwestern United States. For that reason, Canada is prepared to consider guaranteeing the total supply to the Puget Sound area during the period that a pipeline might be constructed through northern Canada. Such a Canadian guarantee for the Puget Sound supply would, of course, be limited to the present refining capacity in that area. The amount of *added* Canadian oil required for this purpose would be relatively small compared to the total Canadian exports to the United States and would also be relatively small compared with present Canadian deliveries to the Puget Sound area.

(5) Alyeska is built. Canada would find little attraction in having a second oil pipeline built through Canada to serve U.S. Midwest markets *unless* and *until* sizeable commercial Canadian oil discoveries have been made in the north. Moreover, Canada is aware that the economic attraction of looping an existing TAPS line would undoubtedly militate against construction of a line through Canada. Admittedly, other circumstances such as markets and security of supply might make it attractive to build such a second line through Canada. However, such circumstances are undoubtedly present even in respect of the first oil pipeline.

DEPARTMENT OF STATE,
Washington, D.C., July 16, 1973.

HON. JOHN MELCHER,
Chairman, Subcommittee on Public Lands, Committee on Interior and Insular Affairs, House of Representatives, Washington, D.C.

DEAR MR. CHAIRMAN: On July 7 I sent you detailed written responses to questions posed by our Embassy in Ottawa to Canadian officials on a possible Canadian alternative to the proposed Trans-Alaska oil pipeline route.

We have just today received from our Embassy in Ottawa a revision which the Canadian Government wishes to make in its earlier answer to the question on pipeline ownership and control which appeared at the bottom of page 2 of the report attached to my letter of July 7.

Sincerely,

MARSHALL WRIGHT,
Assistant Secretary for Congressional Relations.

Enclosure:
Question and Revised Answer.

Question. What is the Canadian Government position likely to be with regard to ownership and control?

Answer. Speaking to this point in connection with a gas pipeline in the House of Commons on May 22, 1973, Minister Macdonald said

> "Mr. Speaker, I have indicated that the objective of the government would be to give an opportunity to Canadians to acquire 51% ownership in any such pipeline and the expectation that it would remain under Canadian control."

In connection with an oil pipeline which might take U.S. oil to U.S. markets using Canada as a "land bridge", it would not be its policy to require majority Canadian ownership. However, as Canadian oil becomes available it would be expected that the pipeline would be expanded to accept such oil.

In addition, all interprovincial and international pipelines are under National Energy Board control.

CONGRESS OF THE UNITED STATES,
HOUSE OF REPRESENTATIVES,
Washington, D.C., July 16, 1973.

Hon. WILLIAM P. ROGERS,
Secretary, Department of State,
Washington, D.C.

DEAR MR. SECRETARY: I am enclosing a letter I have received from three environmental groups in which they made very serious charges that the State Department did not accurately represent the Canadian position on a Mackenzie Valley pipeline, in some important respects, in your Department's June 22 and June 27 communications to me on the subject.

The charge is contained in the fourth paragraph of the letter. Subsequent material deals with specifics.

There is attached to the letter a document which is represented to originate from Canada which repeats the statement that Canada would not require majority ownership of a "land bridge" pipeline.

The Canadian position on throughput is allegedly stated in the first paragraph on Page 5.

The Subcommittee is now marking up the pipeline bill. I would appreciate the earliest possible statement from the Department as to the accuracy of the charges in the letter, the claim that is made that the Canadian government representatives asked your Department to modify the information given me before submission and the accuracy of the Canadian position as reported in the letter sent me by the Wilderness Society, the Friends of the Earth and the Environmental Defense Fund.

Sincerely,

JOHN MELCHER.

WILDERNESS SOCIETY, FRIENDS OF THE EARTH,
ENVIRONMENTAL DEFENSE FUND,
Washington, D.C., July 16, 1973.

Hon. JOHN MELCHER,
Chairman, Subcommittee on Public Lands, Committee on Interior and Insular Affairs, House of Representatives, Washington, D.C.

DEAR CHAIRMAN MELCHER: Information has come to us which indicates that the Department of State has deliberately withheld information from your Subcommittee and from Congress, and has seriously misrepresented the position of the government of Canada, in order to downgrade the feasibility of a possible trans-Canada oil pipeline.

As you know, in response to your inquiries during the recent hearings of your Subcommittee we delivered to you on July ninth a letter raising a number of questions about the State Department's responses on this subject. Our letter was accompanied by a memorandum documenting in detail an extensive record of declarations by the Canadian government encouraging United States overtures toward the construction of a trans-Canada oil pipeline in lieu of the proposed trans-Alaska pipeline. The State Department in letters to you on June 22 and June 27 had painted a contrary picture, without supporting documentation.

On July 9 you forwarded to other members of the Committee on Interior and Insular Affairs a memorandum with a covering letter dated July 7 from the Department of State dealing with this subject. A copy was supplied to us by the

Subcommittee staff. The memorandum was represented by the Department of State as containing the Canadian government's answers to questions submitted by the department in response to your request for information as to Canadian government views.

It is our information, however, that that memorandum is not fully in conformity with and reflective of the Canadian government's actual views. We are reliably informed that the Department of State was in fact requested by the Canadian government to revise a portion of the memorandum before submitting a copy to you. This request, we are informed, was made on July 6, the day before the memorandum was sent to you. We are told, however, that the request was refused.

The portion of the memorandum in question deals with two major issues concerning a trans-Canada pipeline, that of the pipeline's ownership and control and that of the throughput of American oil through such a pipeline in relationship to any Canadian oil that might be transported through such a pipeline.

The memorandum in the form sent to you by the Department of State asserts that the Canadian government's objective would be to give an opportunity to Canadians to acquire 51 percent ownership in any pipeline and would expect such a pipeline to remain under Canadian control. We are informed that the Canadian government on July 6 asked the department to add language to the memorandum stating that Canada, in fact, would *not* require 51 percent Canadian ownership of a pipeline built to transport Alaska oil, even though it *would* seek such ownership for a *gas* pipeline.

In addition, we are informed that the Canadian government asked that language be added at this point in the memorandum making it clear that any Canadian oil that became available in the future for transport through such a pipeline would not restrict American throughput, because Canada would expect the pipeline to be expanded to accommodate additional oil.

We further are informed that the Canadian government expressly asked on July 6 that (1) the document be submitted to Congress and (2) the requested revisions be made before such submission. We are informed that the Department of State at first refused to agree to submit the memorandum to Congress at all, finally agreeing only after being informed that the Canadian government intended itself to make the document public. We are told that the State Department's response to the Canadian request to incorporate the revisions was a flat refusal.

On July 6—the same day—the Canadian government did make public the memorandum as revised. In that connection, Donald S. Macdonald, Minister of Energy, Mines and Resources, engaged in the following colloquy in the House of Commons:

Mr. John A. Fraser [Vancouver South]: Mr. Speaker, I have a question for the Minister of Energy, Mines and Resources. In view of the statement of the U.S. Government and Senators that when the Alaska Oil Pipeline is approved they will want a second oil pipeline from Alaska through Canada to supply the U.S. Midwest, and in view of the government's position that it would look favorably on the Mackenzie oil pipeline in order to avoid oil spills off B.C. Coast, can the Minister tell the House if this government would look favorably on an oil pipeline through Canada which does not replace the Alaskan pipeline and tanker route but which would be in addition to the Alaska pipeline and tanker route?

The Hon. Donald S. Macdonald [Minister of Energy, Mines and Resources]: No, sir.

Mr. Fraser: As a supplementary question, can the Minister inform the House whether the U.S. State Department has made any recent inquires as to whether the Canadian government has any strong, current interest in the construction of the Mackenzie Valley oil pipeline? I emphasize recent.

Mr. Macdonald [Rosedale]: Yes, sir. On behalf of members of the U.S. Congress, the U.S. State Department, through its embassy here, has submitted questions to the government of Canada, not only the question mentioned by the Hon. Gentlemen but a series of other questions, to which the government of Canada has replied in detail. We are hopeful that the U.S. State Department will make certain that message is received by the Senators and Congressmen before any decision is taken within that legislative body.

Yet the memorandum forwarded to you by the State Department on the following day, July 7, did not conform to the one Minister Macdonald had already made available to the House of Commons and the press in Ottawa. Nor did the State Department's July 7 letter report the above colloquy.

Here are the question and answer as they appear in the version of the memorandum sent by the State Department to Congress:

Question. What is the Canadian Government's position likely to be with regard to ownership and control?

Answer. Speaking on this point in the House of Commons on May 22nd, 1973, Minister Macdonald said:

> "Mr. Speaker, I have indicated that the objective of the government would be to give an opportunity to Canadians to acquire 51 percent ownership in any such pipeline and the expectation that it would remain under Canadian control. In addition all interprovincial and international pipelines are under National Energy Board control."

Here is the answer to the same question that appears in the revised statement of the Canadian government:

Speaking to this point in connection with a gas pipeline in the House of Commons on May 22nd, 1973, Minister Macdonald said:

> "Mr. Speaker, I have indicated that the objective of the government would be to give an opportunity to Canadians to acquire 51 percent ownership in any such pipeline and the expectation that it would remain under Canadian control."

In connection with an oil pipeline which might take U.S. oil to U.S. markets using Canada as a "land bridge," it would not be its policy to require majority Canadian ownership. However, as Canadian oil becomes available it would be expected that the pipeline would be expanded to accept such oil.

In addition, all interprovincial and international pipelines are under National Energy control.

The State Department's June 22 letter to your subcommittee declared: Canada has consistently maintained that it must retain operational control of the Canadian portion of any pipeline. Canadian officials also have stated that a basic requirement of any pipeline project would be to give opportunity to Canadians to acquire 51 percent ownership.

To our knowledge, the department has yet to inform Congress that Ottawa on July 6 told the department emphatically that its position regarding ownership is diametrically opposite to the above and asked the department to convey this information to Congress.

We believe that the seriousness of the State Department's failure to convey to you immediately upon receipt both the original memorandum and the subsequent revision is apparent. It appears that the department has attempted to suppress a document which particularly in its final version, gives fresh and persuasive support to the view that we have already sought to document for your subcommittee: that contrary to the representations of the State Department and of Administration witnesses who have testified before your subcommittee, the Canadian government is favorably disposed toward construction of a trans-Canada oil pipeline in place of the proposed trans-Alaska pipeline-tanker system and that this subject deserves intensive investigation by Congress.

Attached for your examination is the Canadian government's approved version of the memorandum. Also attached are a reproduction of an article in the July 7 Toronto *Globe and Mail* reporting on the Canadian version of the memorandum and a reproduction of an article in the July 7 Montreal *Gazette* reporting Minister Macdonald's July 6 statements in the House of Commons.

We would like to bring to your attention additional information on the State Department handling of this matter disclosed during the floor debate on Thursday, July 12, in the Senate (Congressional Record, S13244–7). This information further indicates that the department has deliberately sought to withhold vital information from Congress and the public. We urge you to schedule further public hearings for the purpose of obtaining full explanation from the department as to its handling of this entire matter.

Sincerely,

STEWART M. BRANDBORG,
Executive Director, The Wilderness Society.
RODERICK A. CAMERON,
Executive Director, Environmental Defense Fund.
GEORGE ALDERSON,
Legislative Director, Friends of the Earth.

"What is the current status of relevant Canadian environmental studies? What is the expected date of their completion?"

The Government's environmental social program calls for the publication, as they become available, of 121 reports on all phases of environmental and social concern as related to northern pipelines; of these 39 reports have already been published by Government and an additional 16 by others. It is expected that the complete material thus assembled will place the government in position to adequately assess an application for a pipeline by the end of this year.

Industry has indicated that they expect to file an application for a gas pipeline at the end of 1973 or shortly thereafter.

"What is the status of consideration of native claims? What is the expectation as to time required for their settlement?"

The Indians of the Mackenzie Valley are signatories to Treaties 8 and 11. The Government's obligation under these Treaties has as yet not been fully met; the Government has affirmed that it will meet these obligations and toward this end has offered to set aside the necessary lands. However, recent indications are that the NWT Indian Brotherhood is preparing to advance claims over and above that specified by Treaty. In this respect, the Brotherhood has attempted to file a caveat to protect lands they deem to be covered under the Treates. The matter is now before the Territorial Courts. The Government has accordingly presented its case, alleging that the caveat by its nature is not registerable. It is expected that the resolution of this specific issue will take a number of months. Although the caveat, if registered, would not apply to mining and oil rights, it could affect the granting of a pipeline right-of-way. At the moment it is not clear how and within what time frame this matter could be resolved, should the problem arise.

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Depending on the route chosen, the pipeline could pass through areas of the Mackenzie Delta where the Inuit (Eskimos) may have certain land claims. These have not as yet been fully defined and the Government has made available funds to the Inuit Tapirisat for further research.

In summary, indications are that settlement in the Yukon could be achieved within approximately two years, during which time the application could be heard and construction commenced. The situation regarding the Native Brotherhood in the NWT is not yet sufficiently clear to allow a precise statement; and considerable research must still be carried out before Inuit claims become fully defined and therefore negotiable. It is the Government's intention to proceed with northern development in the best interests of Canada, as a whole, but at the same time the Government is determined to ensure the just settlement of native claims.

"What is the Canadian Government's position likely to be with regard to ownership and control?"

Speaking to this point in connection with a gas pipeline in the House of Commons on May 22nd, 1973, Minister Macdonald said:

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"When will the Canadian Government be ready to give active consideration to proposals from the private sector?"

In respect of a gas pipeline, Minister Macdonald said on May 23rd, 1973, in the House of Commons:

> "Of course, the law has always been there with regard to the making of an application, but we have indicated within the past 12 months that we are completing our studies for the purpose of evaluating such an application and that we expect about the end of this year to be in a position to evaluate any application that comes forward. For that reason we have not issued an invitation to any specific group, but we have indicated that we are in a position to deal with such an application under the law."

In respect of an oil pipeline the above statement still applies. However, it should be noted that the Canadian Government has not received an application for construction of such an oil pipeline in the north nor is it apparent that any company or any group of companies is preparing to make such an application in the near future.

Substantial work has been completed by Mackenzie Valley Pipe Line Research Limited and much of this work relates to environmental and social matters. However, there undoubtedly would be additional work required by a prospective applicant in respect to environmental considerations. Additional work on details of engineering design would also be required, although these could proceed concurrently with environmental work.

"What would the process of consideration entail (e.g.—public hearings and a finding by the National Energy Board prior to consideration by the Government and Parliament) and how long a time would it likely require?"

An application to build an oil pipeline would be heard by the National Energy Board which would then make its findings known to the Government. If the National Energy Board rejects the application, no further action is required by the Government. However, if the National Energy Board recommends approval of the application, the final decision must then be made by the Government. There is no legal requirement to refer to Parliament either the National Energy Board finding or the decision of the Government.

Further, the Minister of Indian and Northern Affairs, the Honourable Jean Chrétien, has announced that upon receipt of an application for a pipeline right-of-way, an Inquiry will be held under the Territorial Lands Act with the purpose of assessing the regional socio-economic and environmental implications arising out of the construction and operation of a major pipeline in the Territories. These hearings will be held in addition to those under the National Energy Board Act described above.

The time required for a National Energy Board hearing for an oil pipeline is unknown at this time, but might take perhaps up to one and a half years, including time required to arrange financing. The hearings by the Department of Indian Affairs and Northern Development would also be concluded within that time period.

"Are there significant Provincial/Federal differences which are likely to delay an eventual Canadian decision? To what extent would differences of view between eastern and western Canadians obstruct or delay decisions?"

A northern oil pipeline would be a "federal work". As such, the Provincial Governments are not legally involved. The National Energy Board Act grants to a successful pipeline applicant the right to expropriate lands, including Provincial Crown Lands, if such are necessary to complete the project.

"What is the status of Canadian government consideration of a possible Mackenzie Valley gas pipeline?"

The answers given above gave the status of the Canadian Government's environmental work in connection with a possible gas pipeline. It should be noted that under the Task Force on Northern Oil Development, six committees have been established and work has been in progress in most of these committees for a number of years. The Advisory Committee on Northern Pipeline Financing was established in early 1973 and results from its considerations should be available by the time an application to build a gas pipeline could be filed.

"Would active Canadian consideration of a Mackenzie Valley oil pipeline delay consideration of the prospective application for a gas pipeline? Are there proponents in Canada of the gas pipeline who oppose encouragement of Mackenzie Valley oil pipeline on these grounds?".

Canada would likely wish to avoid the necessity of building both an oil pipeline and a gas pipeline simultaneously because of the impacts upon the Canadian economy. If it is decided to proceed with active consideration of the Canadian oil pipeline, it is likely that the question of building a gas pipeline would be derived. for reasons of gas supply to such a pipeline. This is based on the assumption that some 50 per cent of the gas supply would be solution gas from the Alaska North Slope. If an approval to build a Canadian oil pipeline was granted and if the Canadian Government did not wish to have the gas pipeline built simultaneously, it is possible that the construction of the gas pipeline could be delayed by some three years compared with the decision to build the Alyeska oil pipeline.

"Any other observations deemed relevant."

There are a number of other elements to the Canadian position in respect to the northern oil pipeline.

Canada does not now have commercial oil discoveries in the north, although the prospects are rated very high. There could be some 100 to 150 Mbd of natural gas liquids, if the gas pipeline is constructed.

The Government guidelines on northern pipelines are clear in stating that Canada requires that Canadian production have "access" to such pipelines. Undoubtedly such access would be achieved by adding pipeline capacity rather than "locking out" non-Canadian supplies. Thus Canada does not require any fixed percentage of the through-puts of either a gas pipeline or of an oil pipeline.

There would seem to be no reason why the United States would need a "treaty" or agreement with Canada to cover such pipelines which would cross Canadian territory and carry U.S. supplies to U.S. markets. In this connection, the Canadian Government notes that both loops of the Interprovincial-Lakehead pipeline system cross the United States and that throughputs of these loops are vital to Ontario oil markets. The Montreal oil market is entirely dependent on the Portland-Maine to Montreal pipeline. In addition, approximately half of the Canadian gas markets, east of Manitoba, dependent on the Great Lakes pipeline which crosses the United States. None of these important pipelines, across United States territory is covered by "treaty" or international agreement.

Canada continues to view with alarm the prospect of large tanker movements into the Puget Sound area of the Pacific northwestern United States. For that reason, Canada is prepared to consider guaranteeing the total supply to the Puget Sound area during the period that a pipeline might be constructed through northern Canada. Such a Canadian guarantee for the Puget Sound supply would of course, be limited to the present refining capacity in that area. The amount of *added* Canadian oil required for this purpose would be relatively small compared to the total Canadian exports to the United States and would also be relatively small compared with present Canadian deliveries to the Puget Sound area.

If Alyeska is built, Canada would find little attraction in having a second oil pipeline built through Canada to serve U.S. Midwest markets *unless* and *until* sizeable commercial Canadian oil discoveries have been made in the north. Moreover, Canada is aware that the economic attraction of looping an existing TAPS line would undoubtedly militate against construction of a line through Canada. Admittedly, other circumstances such as markets and security of supply might make it attractive to build such a second line through Canada. However, such circumstances are undoubtedly present even in respect of the first oil pipeline.

[From Toronto Globe and Mail, July 7, 1973]

CANADA FEELS OIL PIPELINE WOULD DELAY GAS LINE

OTTAWA.—Building of a Mackenzie River valley oil pipeline would probably delay construction of a northern gas pipeline by at least three years. Canada has told the United States in a reply to U.S. Department questions.

Such a delay could result simply from active consideration of a Mackenzie valley oil pipeline, the document says. It was sent via the U.S. Embassy in Ottawa.

Officials of the Department of Energy, Mines and Resources responsible for drafting the document explained yesterday that a gas pipeline would not likely be started until after the oil pipeline was completed, which would be 1978 at the earliest. This could postpone completion of a gas line until 1981 at the earliest.

"Canada would likely wish to avoid the necessity of building both an oil pipeline and a gas pipeline simultaneously because of the impacts upon the Canadian economy," the document says.

And about half the gas to be carried by the pipeline—the Alaskan gas—would not be available until the oil pipeline was completed.

Officials explained that the Alaska gas is "solution gas" that would be produced at the same time as the North Slope oil. Therefore, until Alaskan oil production began, with the completion of an oil pipeline, any gas line would be carrying only Canadian gas, at about 50 per cent of capacity.

In response to an American question headed "Any other observations deemed relevant," Canada says it would not be very interested in building an oil pipeline through the Mackenzie Valley if the United States builds the Alyeska pipeline through Alaska.

"Canada would find little attraction in having a second oil pipeline built through Canada to serve U.S. Midwest markets unless (underlined) and until

(underline) sizeable commercial Canadian oil discoveries have been made in the North."

In the Commons yesterday, Energy Minister Donald Macdonald said the Government will not approve a Mackenzie valley oil pipeline if the proposed Alaska pipeline is built first. He said he hopes the answers to the State Department's questions are available to congressmen and senators before they make any decision on the Alaska line.

Elsewhere, the document says that although there are not yet any commercial oil discoveries in the Canadian North, the prospects of finding oil "are rated very high."

Canada does admit that "other circumstances such as markets and security of supply might make it attractive to build such a send line through Canada."

Opposition to the Alyeska pipeline and tanker transportation scheme is repeated. "Canada continues to view with alarm the prospect of large tanker movements into the Puget Sound area of the Pacific Northwestern United States." Therefore Canada offers to consider guaranteeing the "total supply to the Puget Sound area (in terms of present refining capacty) during the period that a pipeline might be constructed through northern Canada."

Sources say that in the event the United States goes ahead with the scheme. Canada would offer to supply Pudget Sound with Alberta oil if the tankers took the Alaska oil farther south (such as to San Francisco) instead of to Puget Sound. This would remove the need for the tankers to come close to southern British Columbia waters.

Seven questions on Mackenzie valley pipeline development. and circumstances surrounding such development, were put by the U.S. State Department early in June.

An aide to the Energy Minister said Canada's reply was sent late in June.

One Government official said yesterday that if the Alyeska pipeline is built, "there'd be no reason of a financial impact nature to prevent Canada from building a Mackenzie valley gas pipeline."

Should the Americans want to build the pipeline through Canada. whatever the reason, then Canada would be faced with a "hard decision': whether to build the oil and gas pipelines simultaneously and risk straining the Canadian economy (as the recent energy paper suggested); or whether to build the oil pipeline first and delay the gas pipeline, leaving Canadian gas in the ground "looking for a U.S. market" for a number of years. He said Canada is not expected to need northern gas for its own use until late in the 1980s.

Canada tells the United States in the document there would seem to be no reason for a special U.S-Canadian treaty to cover any pipelines carrying U.S. supplies of oil and gas to U.S. markets across Canadian soil.

Any "land bridge" oil pipeline to carry U.S. oil to U.S. markets would not have to be controlled by majority Canadian ownership, it says. But as Canadian oil becomes available. it would be expected that such a pipeline would be expanded to accept Canadian oil (rather than requiring the U.S. oil flow to be reduced.)

Canada reiterates its position that a northern gas pipeline would have to be constructed so that Canadians would have the opportunity to acquire 51 per cent ownership and so that the pipeline would remain under Canadian control.

With respect to native peoples' rights in the North. Canada says that settlement in the Yukon could be reached within about two years. during which time application for a pipeline could be heard and construction started.

"The situation regarding the Native Brotherhood in the Northwest Territories is not yet sufficiently clear to allow a precise statement: and considerable research must still be carried out before Innit (Eskimo) claims become fully defined and therefore negotiable."

[From Montreal Gazette, July 7, 1963]

ARCTIC OIL PIPELINE UNLIKELY IF ALASKA LINE BUILT—OTTAWA

OTTAWA (UPI).—Canada would not look favorably on a U.S. application to build an oil pipeline through Canada if the United States first goes ahead with the Alaska pipeline route, energy minister Donald MacDonald said yesterday.

Conservative John Fraser asked "if this government would look favorably on an oil pipeline through Canada which does not replace the Alaska pipeline and tanker route but which would be in addition to the Alaska pipeline and tanker route?"

The minister's reply was a brief but emphatic, "no, sir."

The Canadian government has consistently opposed a U.S. proposal which would involve heavy tankers carrying oil from Prudhoe Bay, Alaska to refineries in Cherry Point, Alaska.

OIL SPILLS

Canadian authorities cite the possibility of oil spills, especially off the coast of British Columbia, when they explain their opposition to the tanker route. The tankers must pass through the narrow Straights of Juan de Fuca before arriving at Cherry Point.

So far court injunctions sought by environments have held up the start of the Alaska part of the pipeline. But the U.S. Senate is expected to examine a bill on the tanker route and take a vote early next week.

MacDonald also said U.S. state department representatives had submitted a series of questions to the government as to the Canadian position on certain aspects of the pipelines.

"The government replied in detail," MacDonald said. "I hope the answers get to the senators and congressmen before any decision is made" he said.

The questions mainly dealt with matters which have already been made public by the Canadian government such as the current status of environmental studios and native claims with respect to the Mackenzie Valley route.

But in the last section under "other observations deemed relevant" the department of energy, mines and resources amplified what MacDonald said in the House of Commons yesterday.

"If Alyeska is built, Canada would find little attraction in having a second oil pipeline built through Canada to serve U.S. midwest markets unless (underlined) and until (underlined) sizeable commercial Canadian oil discoveries have been made in the north.

DEPARTMENT OF STATE,
Washington, D.C., July 17, 1973.

Hon. JOHN MELCHER,
Chairman, Subcommittee on Public Lands, Committee on Interior and Insular Affairs, House of Representatives, Washington, D.C.

DEAR MR. CHAIRMAN: The Department has received your letter of July 16 which in turn enclosed correspondence from three environmental groups in which it is charged that the Department did not accurately represent the Canadian position on a possible Mackenzie Valley pipeline in its communications with you.

The allegations, I believe, are based on misinformation, and I wish to assure you that the Department has sought to be thorough, accurate, and prompt in providing you with its reports on the views of the Canadian Government in this matter.

Upon receipt of your letter we have reviewed the Department's records and trust you will find the following information reassuring in this regard. The facts are as set forth below.

Late on the afternoon of July 5 the Department received from the American Embassy in Ottawa the texts of responses given the Embassy by the Canadian Government to questions the Department had instructed the Embassy to discuss with Canadian authorities.

These responses were being studied in the Department when, on July 6, the Canadian Embassy in Washington asked the Department to forward them to the appropriate committees of the Congress. During the discussion it became clear that the response to one of the questions, as supplied our Embassy in Ottawa by the Canadian Government, was different from the version the Canadian Government had supplied its own Embassy in Washington.

On the afternoon of July 6 the Department checked by telephone with our Embassy in Ottawa to make certain that there had not been a clerical error and confirmed that we had the version actually provided the Embassy by the Canadian Government. Subsequently the same day, the Department informed the Candian Embassy in Washington that it was transmitting this text to the appropriate committees of the Congress. The Department also suggested to the Canadian Embassy that if the Canadian Government wished to revise the answer to one of the questions it should promptly inform our Embassy in Ottawa. At the same time we alerted our Embassy in Ottawa that it might be approached by the Canadian Government with a revised version and we instructed the Embassy to report the details promptly if such an approach were made.

On the morning of July 7 the Department forwarded to the Congress the version of the responses which had been given to the Embassy in Ottawa.

Having heard nothing further on the matter from our Embassy in Ottawa, the Department checked by telephone on July 16 and was informed that indeed a revised version of the answer to one question had been given to the Embassy, under cover of a letter dated July 10, and that it was enroute to the Department by diplomatic pouch. Because of the urgency of the matter, the Department had the revised version dictated over the telephone. We supplied the text of the new version to your office late that afternoon, July 16, under cover of a letter which apparently crossed with your letter of the same date to which I am now responding.

In short, we believe we have promptly and accurately conveyed to the Congress all the information supplied us by the Canadian Government. If you require anything further, however, please do not hestitate to let us know.

Sincerely,

MARSHALL WRIGHT,
Assistant Secretary for Congressional Relations.

Mr. MELCHER. At a later time. I will consider scheduling further consideration of the pipeline legislation by the subcommittee. In the meantime, members of the subcommittee are urged to review the Interior Department's environmental impact statement, which is right here, and the staff is directed to obtain from Interior a resume of this impact statement. On June 15, the subcommittee will meet to hear testimony from Secretary Morton or his representative on the environmental impact statement.

In view of the size of the environmental report, I want to call the members' attention to a summary prepared by the Library of Congress. This is a 34-page document and sets forth the highlights of the 6-volume, 3,000-page report, prepared by the Department of the Interior. This document is entitled, "Highlights by the Department of Interior's Environmental Report and Decision on Proposed trans-Alaska Pipeline", designated as HD9560, U.S. 72-1565P.

I would also suggest the four other Library of Congress pipeline reports on related issues. These are the "North Alaska Oil and Related Issues," HD9560, US 72-238SP; second, "Energy From the North", HD9560, US 73-91EP; the third, "Alaska Oil", HD9560, US 71-87EP and fourth, "Mackenzie Valley Alternative."

We will proceed today, the last day of the hearings where we accept testimony from the public. First of all, Mr. Stewart Brandborg, Wilderness Society, Washington, D.C.

I want to remind the committee members and anyone else who is interested that the hearing record will remain open. While we have numerous statements that have been submitted to the committee and will be made a part of this record, we will offer the opportunity for any individual or any group that would like to comment on the Interior Department's resume of their environmental impact statement, and we will also accept those statements in written form and make them part of the record following our meeting on June 15, when we will hear testimony from Secretary Morton or his representative, giving us information on their environmental impact statement.

I think I have covered the points that are necessary. Does the staff have additional points to make?

We will proceed now to hear from Mr. Brandborg.

Brandy, we are pleased to have you here. We have scheduled you at times and had to ask you to accommodate the committee's time

and not testify on particular dates when we have had you scheduled. We apologize for that, but we are very interested in your comments and recommendations on the proposal.

Please proceed.

Mr. BRANDBORG. Thank you very much, Mr. Chairman.

The committee has accommodated me, too, because of conflicts, and we very much appreciate your generosity in scheduling us today.

STATEMENT OF STEWART M. BRANDBORG, EXECUTIVE DIRECTOR, THE WILDERNESS SOCIETY, WASHINGTON, D.C., ACCOMPANIED BY JAMES G. DEANE, EXECUTIVE EDITOR

I am Stewart M. Brandborg, executive director of the Wilderness Society. I am accompanied today by Mr. James G. Deane, executive editor of the society.

I would ask, Mr. Chairman, that our complete statement be printed in the record at this point. I will orally summarize it, using extracts, at this time.

Mr. MELCHER. Without objection, Mr. Brandborg's entire statement will be made a part of the record at this point.

Hearing no objection, so ordered.

[The complete prepared statement of Mr. Brandborg, above-referred to, follows:]

STATEMENT OF STEWART M. BRANDBORG, EXECUTIVE DIRECTOR, THE WILDERNESS SOCIETY

Mr. Chairman and members of the Committee: I appreciate your invitation to testify today. I am Stewart M. Brandborg, executive director of The Wilderness Society. I am accompanied today by Mr. James G. Deane, Executive Editor of the Society. As you know, our Society is a non-profit, nationwide citizens' organization whose purpose is to help protect wildlands and to help conserve all natural resources through educational programs and cooperation with other organizations and governmental agencies. Our headquarters is here in Washington and we have some 80,000 members. Since 1970 we have also been one of the plaintiffs in the Alaska pipeline case, Wilderness Society, et al., v. Hickel (now Morton).

Since the focus of today's hearing is a proposed undertaking having profound implications for the future of Alaska, I would like to mention the deep involvement which leaders of The Wilderness Society have long had with Alaska's land and people.

Robert Marshall, who played a leading part in founding the Society in 1935, explored much of the Brooks Range, lived for 15 months in Wiseman, and wrote extensively about both Alaska's wilderness and its native people. Olaus Marie, who served as the Society's president and director, made several scientific expeditions into the Brooks Range. Sigurd Olson, a present member of our governing council and formerly our president, has conducted Alaska studies as a consultant to the Secretary of the Interior and the director of the National Park Service. Celia Hunter, another Wilderness Society council member, is a member of the Joint Federal-State Land Use Planning Commission for Alaska and one of Alaska's most prominent conservationists.

Those I have named are only the first to come to mind. We have had and continue to have many close ties with Alaska. We are sympathetic with the needs and aspirations of our 49th state, and particularly the needs of her native people who desire to perpetuate their way of life and their rich cultural heritage in its historic setting.

Since the filing of an application to build a trans-Alaska oil pipeline in June, 1969, we have been deeply apprehensive regarding the effects that this project must have on the Alaskan environment and particularly on the hundreds of miles of public lands which the pipeline would traverse. These public lands,

with their rivers and streams, their lakes and ponds, their tundra and mountain slopes and forests, support wildlife that in some respects has international significance. These public lands also have an incomparable recreational and inspirational potential for the American people and, indeed, for people everywhere who appreciate unsullied natural beauty and the wonders of nature.

There is no debating the prospect that the trans-Alaska project, if it is allowed to proceed, will bring ecological insult to what are now beautiful and unspoiled Alaskan wildlands. The Interior Department and the sponsors of the project have done their best to minimize this prospect, but it remains the fact. Is there adequate justification for allowing this to happen?

It is our conviction that the action of the courts in blocking the trans-Alaska pipeline project has presented Congress with a most fortunate and timely opportunity to obtain a sound answer to this question. What the courts have done is to give Congress a chance to examine in depth both the trans-Alaska plan and alternatives that could well prove far more in the public interest. We hope earnestly that Congress will take full advantage of this opportunity.

It has disturbed us greatly that the Executive Branch has seemingly confined itself to the narrow horizon of the group of oil companies sponsoring the trans-Alaska plan. These oil companies are impatient to proceed with their own plan. They have not wished to have alternatives considered. This is quite understandable. Having ordered prematurely nearly 800 miles of pipe (from Japan, curiously enough), and having it shipped to Prudhoe Bay, Valdez and Fairbanks, of course they would rather not move it to a different route even if a better route now appears to be available. Nor do they want to admit making what may have been a serious blunder. But it is becoming increasingly obvious that the trans-Alaska plan may be just that.

Let me summarize rapidly what we see wrong about the Alyeska plan and then state what we would propose for consideration in its stead.

We consider the Alyeska plan faulty on several counts. First, two thirds of the proposed 789-mile pipeline would traverse one of the world's highest-risk earthquake belts, a fact that speaks for itself regardless of the best fail-safe design efforts. Second, two thirds of the proposed overall delivery system is an ocean tanker shuttle constituting an inevitable pollution threat to the rich fishery of Alaska's Prince William Sound and the waters and beaches of British Columbia, Washington, Oregon and California. Third, the plan involves not only a gigantic oil pipeline down the entire length of Alaska but an even longer 48-inch natural gas pipeline, to be built *not*, ironically enough, on the *same* route but crossing Canada, and in the very Mackenzie Valley corridor which the trans-Alaska sponsors have spurned as an oil pipeline alternative. Fourth, if qualified economists are correct, the plan would send billions of barrels of scarce petroleum to the wrong place, namely the west coast (and possibly Japan), when it ought to go along with Prudhoe Bay gas to the middle of the continent.

Finally, the plan has a shadowy sequel. For the oil industry evidently is also counting on building a Mackenzie Valley oil pipeline—though only after the Alyeska project has ben irretrievably committed. If that happens, 800 miles of Alaska including some of the continent's last unspoiled wilderness will have been mutilated pointlessly and both the land and sea oil-spill hazards posed by the Alyeska plan will, too late, be proved equally needless.

One of the central objectives of our suit against the Secretary of the Interior has been to enforce what we deem to be the Secretary's obligation under the National Environmental Policy Act to examine fully and objectively all alternatives to the Alyeska plan. This includes, particularly, overland facilities through Canada averting the need for tankers, avoiding Alaska's earthquake problem and preferably using a single corridor for both oil and gas in order to consolidate and minimize environmental damage.

If a combined Mackenzie Valley or other Canadian oil and gas transport corridor serving the interests of both this country and Canada, and facilitating delivery of arctic Alaskan and Canadian oil and gas to suitable markets, can be developed at less overall cost to the environment than the Alyeska plan, we believe such an Alaska-Canada corridor would find wide acceptance. We do not believe this possibility has been given meaningful or objective consideration by the Executive Branch. We certainly believe it deserves thorough scrutiny by Congress.

It needs to be emphasized, Mr. Chairman, that the Alaska-Canada possibilities are much more viable and much more immediately relevant to the needs of this country than the administration has chosen to admit.

In January the consortium of 13 American and Canadian oil and pipeline companies that is planning a Mackenzie Valley oil pipeline, Mackenzie Pipe Line Research Limited, made public a $7.5 million study finding a 1,738-mile 48-inch oil pipeline from Prudhoe Bay to Edmonton not only feasible, but feasible within a time frame and cost range much more favorable than those postulated by the Department of the Interior for such a project.

The consortium's estimate of completion time is four years from the date of a decision to proceed, making full allowance for obtaining necessary government approvals, completing detailed design and engineering, buying materials and equipment and making other necessary preparations. This four-year timetable is only about a year longer than the most optimistic prediction for completing the Alyeska project. The consortium's cost estimate is $3.4 billion, not taking into account possible savings from combining oil and gas pipelines in the same corridor. Even adding the cost of expanding the Interprovincial-Lakehead pipeline system from Edmonton to Chicago, the total cost would apparently still be quite close to the latest estimate for the Alyeska pipeline, which is $3.5 billion. This Alyeska figure, moreover, has no reference to the costs of the ocean leg of the delivery system. You will recall that the president of Alyeska has told this committee that including the tankers required to carry the oil down the west coast would bring the cost of constructing the Alyeska system to at least $5 billion.

In February, Canadian Arctic Gas Study Limited, the U.S.-Canadian consortium which is planning the $5 billion, 3,000-mile Prudhoe Bay-Mackenzie-Midwest gas pipeline, announced its intention of applying this year for U.S. and Canadian construction permits. Canadian Arctic Gas has stated that over the past five years industry-sponsored research expenditures on the Canada gas route have amounted to some $30 million.

Although it may well be that oil and gas pipelines present different problems, in compliance with announced Canadian government guidelines Canadian Arctic Gas will have to demonstrate that its proposal is consistent with Canada's common-corridor policy, and specifically that the route selected for the gas pipeline is also suitable for an oil pipeline. Therefore, a substantial part of the Canada Arctic Gas $30 million program of studies should be relevant and helpful in the consideration of an oil pipeline.

In March, Canada's Minister for Energy, Mines and Resources, the Honorable Donald Macdonald, again stated publicly as he did a year ago that Canada is prepared to entertain an application for a Mackenzie oil delivery system from Prudhoe Bay. Let me quote Mr. Macdonald: "If the Americans came back and said to us, look, we've had second thoughts on that trans-Alaska pipeline, we would like to take you up on your willingness to entertain an application about the oil line through the Mackenzie route, I think the interests of the west coast dictate that the government of Canada should enable that kind of application to go ahead."

Mr. Macdonald also said that Canada would undertake to supply this country with extra oil during any period of delay resulting from abandonment of the trans-Alaska project in favor of an Alaska-Canada plan.

An April 3 in Chicago, Canada's Secretary of State for External Affairs, the Honorable Mitchell Sharp, said essentially the same as Mr. Macdonald about Canada's receptivity toward the Mackenzie plan, which he declared—significantly, we think—could be useful to both countries.

The Canadian government, we are told, is giving study to the possibility of building a Mackenzie Valley railroad system for hauling oil and liquified gas, in place of pipelines. This is further evidence of the strong Canadian interest in the potential of an Alaska-Canada overland oil and gas delivery system.

One of the principal advantages of a trans-Canada delivery system to both Canada and the United States, of course, is that it would tap Canadian as well as Alaskan oil fields, linking them not only with our Midwest but also with the Pacific Coast through the Trans-Mountain Pipeline from Edmonton to Puget Sound. Like the Interprovincial-Lakewood pipeline system to Chicago, Trans-Mountain could readily be expanded. It is worth stressing the fact that an Alaska-Canada overland delivery system, in contrast to the proposed trans-Alaska oil pipeline, would not be confined to serving any one region.

Clearly there is a great deal of information already developed in connection with these Canadian proposals which, as far as we can tell, the Interior Department has made no effort to examine and weigh in connection with evaluating the Alyeska plan. Intensive studies have been under way in Canada for several years. The results of these studies certainly should be obtained and reviewed by Congress, or by whatever agency Congress chooses to designate to perform the essential fact-finding. Such fact-finding obviously could be accomplished promptly from readily available sources. And it is obviously imperative if we are to have a decision in this controversy that will give primacy to the broadest public interest.

I assume that these remarks make it plain that we do not oppose the development of North Slope oil and natural gas. We will support a delivery system to the lower 48 states that will promptly bring both to market, provided it rationally serves the public interest and is consistent with environmental protection and sound land and resource planning. We are convinced, however, on the basis of the demonstrated bias of the Executive Branch with regard to the Alyeska plan, that it is essential that Congress take the issue into its own hands and, after obtaining complete and objective information, make a decision as to which delivery system deserves the government's approval.

We are opposed to enactment at this time of any legislation permanently abandoning or relaxing the present statutory restrictions on federal-land rights-of-way including that in Section 28 of the Mineral Leasing Act of 1920. The immediate and primary purpose of the bills of this character now pending is of course simply to erase the effect of the recent court rulings enforcing the application of Section 28 to the Alyeska project.

The Court of Appeals expressly stated that its decision in the Alyeska case had application solely to gas and oil pipeline projects covered by the Mineral Leasing Act, so that concern expressed by some regarding other kinds of rights-of-way appears totally unwarranted. Moreover, there has been no showing of which we are aware that any existing facility or project proposal is more than theoretically embarrassed by the court decision. Any changes in long-standing rights-of-way limitations enacted for the protection of the public lands should, we submit, come only after thorough study and full hearings.

However, we would have no objection if Congress, as a part of legislation for bringing about a proper decision on the North Slope oil delivery question, wished to enact a provision such as that of the Mondale bill, S. 1565, giving the Secretary of the Interior temporary authority under certain safeguards and conditions to grant rights-of-way wider than the 50 feet permitted by Section 28 of the Mineral Leasing Act, except for a delivery system for North Slope Alaskan oil and gas.

Some are advocating that the trans-Alaska project be allowed to go ahead now and that a Canadian pipeline be constructed later as a second project. We would view as most regrettable any actions by this Committee or by Congress based on an assumption that it is either desirable or necessary to construct two entirely separate delivery systems for Alaskan North Slope oil, crossing different parts of the continent. We know of no facts that would justify such a duplication of facilities and of environmental damage. Nor does it seem likely that Canadians would react favorably to such a duplication. Such a duplication would disregard the excellent principle embodied in the Meeds bill, H.R. 5524, that whenever possible pipelines and similar facilities should be located in common corridors.

For Congress to permit the trans-Alaska project to proceed on the untested assumption that an additional trans-Canada oil pipeline project should follow would also give unfortunate sanction to the very type of piecemeal planning and decision-making at the expense of the environment which Congress in the National Environmental Policy Act has sought to discourage. The trans-Alaska pipeline proposal in our view is a striking example of such piecemeal decision-making on the part of the Executive Branch. Now Congress, which enacted NEPA, is being urged to encourage and approve just such a fragmented approach, by allowing one huge pipeline project here and another there without having sufficient information to determine whether the duplication might not be totally unnecessary.

We believe, Mr. Chairman, that an expert, objective study would demonstrate the validity of the common-corridor concept as it could be applied in the form of a mid-continent oil delivery system. We respectfully urge that the

Committee report a measure that will bring about such a study in order to equip Congress with the basis for deciding what course of action is truly in the national interest.

Mr. Chairman, while the Subcommittee has addressed these hearings specifically to oil and gas pipeline rights-of-way, two of the pending measures, H.R. 5524, and Title IV of H.R. 5441, are concerned with many types of right-of-way. We are concerned by the fact that some interests are pressing Congress for very rapid action on this very complicated legislation, using the court decision as their reason.

We find it especially ironic that blame has been placed on the Court of Appeals for ostensibly creating an emergency requiring hurried legislation, rather than putting any blame where it properly belongs, with the Interior Department and the oil industry. Both were given clear warning three years ago, when a preliminary injunction was issued in our case, on the basis of the unambiguous language of the Mineral Leasing Act. For three years they did nothing to bring the matter to the attention of Congress and to seek a calm and dispassionate resolution.

For the Interior Department and the oil industry now to ask Congress to abolish in a matter of days, without careful deliberation, laws that have been passed over a period of 100 years, is the height of arrogance. We trust that the Congress, mindful of its constitutional power over the public lands, will refuse to become a party to any such ill-conceived plan.

The current public land laws, passed largely in the late 19th and early 20th centuries, developed in an essentially haphazard manner, without a systematic approach as to how the lands might best serve the widest possible combination of uses. For example, insofar as rights-of-way are concerned, some laws provide explicit width limitations, others do not; some confer broad discretion upon the Executive, others provide no discretion; and some make direct grants to specified or unspecified recipients, while others require action by the Executive. The only thing these laws appear to have in common is that they encourage private interests to appropriate the public lands in the manner that best suits *their individual needs.*

These laws reflect the values of the frontier era. When they were enacted it seemed to make little difference whether one strip was cut out one year for an oil pipeline, another strip the next year for a gas pipeline, still another for an irrigation ditch, and yet another for telegraph transmission lines—all criss-crossing the land rather than being planned so as to minimize the commitment of public lands to private uses that foreclose uses of greater potential benefit to the public at large.

Now we know that our wilderness areas and the remaining unscarred public lands are among our most precious remaining natural resources. The public lands of Alaska, our last frontier, are a case in point. They provide our last chance to accommodate in a rational manner the needs of the environment with the necessary development of resources through sound planning.

Spokesmen for the administration, together with many members of Congress and leaders of environmental organizations, share the view that the public land laws need not merely to be revised but to be redirected. There is a profound irony in the administration's approach to resolving the right-of-way problem. These bills would perpetuate piecemeal development at the very time Congress is developing national land use policies.

The administration's proposal is especially distressing. The administration has interjected a purple patch, designated as Title IV, into its "Bill to Provide for the Management, Protection, Development and Sale of the Natural Resource Lands and for other purposes" (H.R. 5441). In the covering letter accompanying this measure, Acting Secretary of the Interior Whitaker stated:

"The Natural Resource Lands are a priceless and irreplaceable national asset. It is time to provide the Department of the Interior with the tools to manage and preserve them in accordance with their value to the American people."

Accordingly, Title I of the administration's bill provides guidelines for assuring the widest enjoyment of the public lands. Of special importance is the definition section which defines the term "multiple use" as follows:

"the management of the national resource lands and their various surface and subsurface resources so that they are utilized in the combination that will best meet the present and future needs of the American people; the most

judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; the use of some land for less than all of the resources; a combination of resource uses that takes into account the long term needs of the future generations for nonrenewable resources and the achievement of diversity and balance for renewable resources; and harmonious and coordinated management of the various resources, each with the other, without permanent impairment of the productivity of the land or undue damage to irreplaceable values, with consideration being given to the relative values of the resources, and not necessarily the combination of uses that will give the greatest economic return or the greatest unit output."

But, at the same time, the administraion has, with inappropriate haste, tacked on the provisions of Title IV, which are totally inconsistent with the expressed philosophy of maximum feasible multiple use of the public lands. The effect of passage of Title IV would be to accede to the initiative of a handful of oil companies and other private interests to carve up the public lands of Alaska and elsewhere in the manner best suited to meet their own individual convenience. And, it is difficult to conclude other than that the intent of the proposal is to continue the philosophy of passive deference to industry initiatives which has characterized the government's approach to the proposed Alaska pipeline.

In short, the administration bill fails to alter the philosophy prevailing in the existing public land laws of focusing upon private industry's immediate proposals for use of the public lands without considering possible future development and use of those same lands. It places no obligation on the Secretary of the Interior affirmatively to develop and to take into account plans for future developments related to the same public lands before approving any right-of-way. They perpetuate the basic defect of the current permit process which focuses the attention of the administrator on a single and specific project, considered in isolation.

In addition, Title IV and H.R. 5524, suffer from a common fault in that they fail explicitly to recognize environmentally significant distinction among rights-of-way for different purposes. A right-of-way for an oil pipeline, for example, presents different problems from rights-of-way for such uses as transmission lines, ditches and tunnels. Referring to the Alaska pipeline as an illustrative example, according to the Interior Department's own evaluation, even with the best detection capability now developed, as much as 750 barrels of oil could be lost every day without being detected. If the pipe were actually to rupture, more than 60,000 barrels could escape from each rupture. Clearly the Committee should be aware of the unique problems presented by different categories of rights-of-way before it takes any action lumping them all together in one omnibus bill.

We are unable to provide detailed comments on all sections of H.R. 5524. However, we do state that the approach taken in that bill appears to be clearly preferable, particularly in its recognition of the need for a common corridor approach to the granting of rights-of-way over the public lands.

There are three basic problems with the common corridor provision of H.R. 5524. First, it would be applied so as to leave the right-of-way process to the initiative of industry, rather than to require affirmative government action to develop information to ensure that each right-of-way application is considered in a suitably broad context. Second, it does not explicitly place responsibility on government officials, who hold the public lands in trust for all Americans, to explore alternatives that would minimize the appropriation of the public lands for private purposes. Third, it contains no "action forcing" procedures so that Congress will be certain that its policy regarding the common corridor approach to rights-of-way will be fully implements. In short, the vague exhortations in Sections 4 of "whenever practical" and "where appropriate" are an open invitation to the Executive to carry on its right-of-way business as usual.

The defects in existing legislation—which are not cured by H.R. 5524 in its present form, much less by the other bills under discussion today—are vividly illustrated by what occurred with respect to the proposed trans-Alaska pipeline.

It was obvious from the time of discovery of oil on the North Slope that the associated natural gas would also have to be delivered to market, presumably by an overland route through Canada. Indeed, in his testimony in our case

Assistant Secretary Jack O. Horton stated that "oil cannot be developed without the consideration of gas." Yet the Department of the Interior did not approach the problem—as we submit Congress should require it to do in tough resource delivery problem because the oil companies had focused on oil only. Secretary Morton himself has repeatedly expressed his Department's approach, "the scope of our work here is to deal with applications on our desk."

From the earliest days of its consideration of the oil companies' proposal for a trans-Alaska pipeline, the Department was criticized for this myopic, 19th century approach to its responsibilities. For example, Lieutenant General William F. Cassidy, then Chief of the Corps of Engineers and Executive Secretary of the Corps' Environmental Quality Council, wrote, as early as July 7, 1969:

"The development of Alaska is proceeding on a resource by resource, an agency by agency or an industry by industry basis with an apparent lack of regard for the total Alaskan development or possible large-scale environmental consequences of such development. The burden of providing total planning and concern for the total environment must rest on the state and federal agencies responsible for such development . . . . As development activities grow with an amazingly rapid and increasing pace, the government is in imminent danger of losing its opportunity to step in and provide the total planning required. There is a real danger that actual private development will preempt government efforts."

Dr. David Brew, the Interior Department geologist responsible for drafting the Final Impact Statement on the Alaska pipeline proposal, has testified in our court proceedings that throughout almost the entire period of the Department's review of the oil companies' proposal, the Department worked on the assumption that there would be a "necessity of producing and transporting the gas from the North Slope oil fields" and on the assumption of "the probable utilization of the trans-Canada route by a gas pipeline." But no attempt was ever made to, in Dr. Brew's words, "look at it in a systematic way, the alternative possibilities for transporting North Slope gas to market, and attempt to evaluate the environmental impact . . . of gas transportation." The interested oil companies were not even asked to disclose their plans for North Slope natural gas. Nor were such questions as the likelihood of a second oil pipeline from the North Slope and the likely future development of oil and gas reserves in the Canadian Arctic and Gulf of Alaska considered germane.

No discussions were initiated by our Government with the Canadian Government either to ascertain its interest in an all-land common corridor for oil and gas or to collaborate with it in the development of data necessary for the selection of the best all-land route. No study was ever undertaken on the specific question of how much of the public lands might be saved or what the potential environmental savings would be of an all-land common corridor that could accommodate both oil and gas pipelines.

The unfortunate result of this approach is that there has never been an adequate assessment of the possibility of having oil and natural gas pipelines, together with other transportation facilities, in a single common corridor. We submit that, under appropriately strong legislative directive, such an assessment would have been required from the very beginning, when the oil resources were first discovered.

There is critical need for extension of these hearings to explore all of the tchnical questions raised here, with the benefit of full and comprehensive tstimony from expert and citizen witnesses. What follows, however, is a generalized summary of the conclusions we have reached to date:

1. Obviously, no action should be taken on any general revision of the right-of-way laws until such time as the Interior Department has presented to the Committee a catalogue of existing right-of-way laws; an explanation of their current provisions; a description of the rights-of-way now in existence under the various laws; and an evaluation of the shortcomings that are alleged to exist in each of the now-existing laws.

2. No action should be taken on any general revision of the right-of-way laws until such time as the Interior Department has provided this Committee with a comprehensive description of the extent to which the public lands are now dedicated to private rights-of-way. Little good will result from any revision of the public land laws if it is merely superimposed upon an archaic structure that is permitted to continue substantially unabated.

3. No final action by Congress on any right-of-way legislation should be taken until complete and comprehensive environmental impact statements have

been prepared by the Department of the Interior and all affected agencies. These, of course, must be made available to the public under standard NEPA procedures. No action should be taken on any general revision of the right-of-way laws until the Interior Department has presented testimony (including testimony by representative members of its field offices where the overwhelming majority of right-of-way applications are processed) on the manner in which right-of-way applications are now processed. Inquiries should be made especially as to the extent, if any, to which current procedures require the collection of information to permit an informed evaluation of future developments that might affect the optimum location of the specific right-of-way requested or even make the right-of-way unnecessary. Without such information, this Committee is not in a position to determine what, if any, procedures should be specifically incorporated into any omnibus statute to ensure that agencies such as the Interior Department are not blinding themselves to future developments in their piecemeal review of permit applications.

4. Any legislation which updates the existing right-of-way provisions must provide action-forcing mechanisms and standards to ensure that the needless duplication of rights-of-way is avoided:

(a) We suggest that it may be appropriate, following the collection of the information described in paragraphs 1–3 above, to insert a general provision analogous to Section 4(f) of the Department of Transportation Act (49 U.S.C. § 1653) in any legislation that may ultimately be reported out of this Committee. Such a provision might prohibit the Secretary from approving an application for a private right-of-way across the public land unless the right-of-way is within an existing common corridor or there is no "feasible and prudent alternative" except to grant a right-of-way outside such exisitng corridors. The same general provision should also contain language that would ensure that necessary planning has occurred prior to the approval of the right-of-way to minimize potential harm to the public lands. At the least, this would require the administrator to take all appropriate steps to collect data from the applicants (and within the term applicant I include parent and associated companies) on possible future developments in the area as well as other relevant information that will permit the administrator to be cognizant of the short and long term developments that are likely to occur.

(b) Additional language is necessary, in our view, to provide explicit recognition that the characteristics and potential impacts of rights-of-way vary greatly. This is especially important in the case of oil and natural gas pipelines which may entail greater risks to public lands than do rights-of-way for other purposes. (There may, of course, be rights-of-way in addition to oil and gas pipelines which also require special attention and the Committee should endeavor to identify them if they exist.) We submit that it would be appropriate to require (1) that to the maximum extent feasible oil and natural gas pipelines must be placed along the route of already-existing pipelines; (2) that unless the Secretary affirmatively establishes that it is not feasible and prudent to do so, pipelines carrying oil and gas from the same fields and areas adjacent thereto must be placed within the same common corridor.

5. To permit Congress to play its proper role in the formulation of policies relating to the use of public lands and the overall energy needs of the country, Congress should reserve for itself the final decision on the vital national question of how the oil and natural gas sources of the North Slope can best serve the needs of the nation.

Mr. Chairman, these preliminary comments are offered in response to the Committee's invitation. We would urge that full and exhaustive hearings be continued with sufficient advance notice to permit complete exposition of all of the technical background and public interest concerns that should be made available to this committee and Congress. The Wilderness Society would wish to provide supplemental information and testimony on the occasion of those future hearings.

I thank you for the privilege of appearing here today.

Mr. MELCHER. You may proceed.

Mr. BRANDBORG. Mr. Chairman, as you know, the society is a nonprofit, nationwide citizens' organization, whose purpose is to help protect wild lands and to help conserve all natural resources through educational programs and cooperation with other organizations and

governmental agencies. Our headquarters is here in Washington and we have some 80,000 members.

Since 1970, we have been principal plaintiffs in the *Alaska Pipeline* case, *Wilderness Society and Others* vs. *Hickel*.

We have had and continue to have many close ties with Alaska. We are sympathetic with the needs and aspirations of our 49th State, and particularly the needs of her native people who desire to perpetuate their way of life and their rich cultural heritage in its historic setting.

Since the filing of an application to build a trans-Alaska oil pipeline in June 1969, we have been deeply apprehensive regarding the effects that this project must have on the Alaskan environment and particularly on the hundreds of miles of public lands which the pipeline would traverse.

There is no debating the prospect that the trans-Alaska project, if it is allowed to proceed, will bring ecological insult to what are now beautiful and unspoiled Alaskan widelands. The Interior Department and the sponsors of the project have done their best to minimize this project, but nonetheless, it remains the fact.

It has disturbed us greatly that the executive branch has seemingly confined itself to the narrow horizon of the group of oil companies sponsoring the trans-Alaska plan. These oil companies are impatient to proceed with their own plan. Since 1969, they have not wished to have alternatives considered. Having ordered prematurely nearly 800 miles of pipe purchased from Japan, curiously enough, and having had it shipped to Prudhoe Bay, Valdez, and Fairbanks, of course, they would rather not move it to a different route even if a better route now appears to be available.

Nor do they want to admit making what may have been a serious blunder. But it is becoming increasingly obvious that the trans-Alaska plan may be just that.

We consider the Alyeska plan faulty on several counts. First, two-thirds of the proposed 789-mile pipeline would traverse one of the world's highest risk earthquake belts, a fact that speaks for itself regardless of the best fail-safe design efforts.

Interestingly, Mr. Chairman, the assurances about fail-safe from the Department, which a group of conservationists received this week on Monday, from the Under Secretary and others, sounds very much like the assurances that we received in 1969 when the Department immediately embraced the proposal for the trans-Alaska pipeline. There was a suggestion then that the Manhattan tanker route would be a possible alternative. But soon thereafter that was proven infeasible by experimentation and the famous "Voyage of the Manhattan." The promises that we get today from the Department sound much like those in 1969.

Now, there can be no lessening of the fact that a great deal of work has gone on in strengthening some of the impact reports, but as far as we can tell, in the absence of new open light, a very careful objective study of what these fail-safe systems amount to, we really don't have anything to go on to make us confident that all of the answers that should be provided are available to us now.

It is for this reason we very much appreciate the thoroughness of

this subcommittee in going into these questions, in examining the impact report, and I would like to ask, if I may, whether it would be possible for the Wilderness Society and the other plaintiffs to call upon their attorneys and their experts, geologists, economists, ecologists, and others, to provide you with a concise statement in reference to the impact statement that you have before you, provided by the Department of the Interior.

Yes, the revised impact statement is much stronger than the original, but we still see major serious flaws in it, mainly, as I point out in my testimony, in the absence of information about the Canadian alternative.

Could we have permission to provide that information to the committee?

Mr. MELCHER. You certainly do have permission to provide that information and we welcome it. We are seeking that type of information. We would very much like to have it from you.

[See information beginning on p. 992.]

Mr. BRANDBORG. Thank you very much.

The scond point in our criticism of the Alyeska plan that we wish to make is that two-thirds of the proposed overall delivery system is an ocean tanker shuttle constituting an inevitable pollution threat to the rich fishery of Alaska's Prince William Sound and the Waters and beaches of British Columbia, Washington, Oregon, and California.

Thirdly, the plan involves not only a gigantic oil pipeline down the entire length of Alaska, but an even longr 48-inch natural gas pipeline, to be built not, ironically enough, on the same route, but crossing Canada, and in the very Mackenzie Valley corridor which the trans-Alaska sponsors have spurned as an oil pipeline alternative.

Fourth, if qualified economists are correct, the plan would send billions of barrels of scarce petroleum to the wrong place, mainly the west coast, possibly Japan, when it ought to go along with Prudhoe Bay gas to the middle of the Continent.

Finally, the plan has a shadowy sequel. For the oil industry evidently is also counting on building a Mackenzie Valley oil pipeline—though only after the Alyeska project has been irretrievably committed. If that happens, 800 miles of Alaska, including some of the Continent's last unspoiled wilderness, will have been mutilated pointlessly and both the land and sea oil-spill hazards posed by the Alyeska plan will, too late, be proved equally needless.

If a combined Mackenzie Valley or other Canadian oil and gas transport corridors serving the interests of both this country and Canada, and facilitating delivery of Arctic Alaskan and Canadian Canada corridor would find wide acceptance.

the environment than the Alyeska plan, we believe such an Alaska-

We do not believe this possibility has been given meaningful or objective consideration by the executive branch. We certainly believe oil and gas to suitable markets, can be developed at less overall cost to it deserves thorough scrutiny by Congress.

It needs to be emphasized, Mr. Chairman, that the Alaska-Canada possibilities are much more viable and much more immediately relevant to the needs of this country than the administration has chosen to admit.

One of the principal advantages of a trans-Canada delivery system to both Canada and the United States, of course, is that it would tap Canadian as well as Alaskan oil fields, linking them not only with our midwest but also with the Pacific coast through the trans-mountain pipeline from Edmonton to Puget Sound.

As you know, Mr. Chairman, this linkage would also extend to some of our Western States who now have pipelines from Canada into Montana, Wyoming, and so forth, so we see there is an opportunity here for service to most of our States east of the Rocky Mountains.

The linkage would be through the Interprovincial-Lakewood pipeline system to Chicago. The trans-mountain could readily be extended for this purpose. It is worth stressing the fact that an Alaska-Canada overland delivery system, in contrast to the proposed trans-Alaska oil pipeline, would not be confined to serving any one region.

I believe these remarks make it apparent, Mr. Chairman, that we do not oppose the development of the North Slope oil and natural gas. We will support a delivery system to the lower 48 States which will promptly bring both to market, provided it rationally serves the public interest and is consistent with environmental protection and sound land and resource planning.

We are convinced, however, on the basis of the demonstrated bias of the executive branch with regard to the Alyeska plan, that it is essential that Congress take the issue into its own hands and, after obtaining complete and objective information, make a decision as to which delivery system deserves the Government's approval.

We are opposed to enactment at this time of any legislation permanently abandoning or relaxing the present statutory restrictions on Federal land rights of way, including that in section 28 of the Mineral Leasing Act of 1920.

The court of appeals expressly stated that its decision in the Alyeska case has application solely to gas and oil pipeline projects covered by the Mineral Leasing Act, so that concern expressed by some regarding other kinds of right of way appears totally unwarranted. Moreover, there has been no showing of which we are aware that any existing facility or project proposal is more than theoretically embarrassed by the court's decision.

Any changes in long-standing right-of-way limitations enacted for the protection of the public lands should, we submit, come only after thorough study and full hearings.

We would have no objection if Congress, as a part of the legislation for bringing about a proper decision on the North Slope oil delivery question, wished to enact a provision giving the Secretary of Interior temporary authority under certain safeguards and conditions to grant rights of way wider than the 50 feet permitted by section 28 of the Mineral Leasing Act, except for a delivery system for North Slope Alaskan oil and gas.

Some are advocating that the trans-Alaska project be allowed to go ahead now and that a Canadian pipeline be constructed later as a second project. We would view as most regrettable any actions by this committee or by Congress based on an assumption that it is either desirable or necessary to construct two entirely separate delivery systems for Alaskan North Slope oil, crossing different parts of the

continent. We know of no facts that would justify such a duplication of facilities that the Canadians would react favorably to such a duplication.

Such a duplication would disregard the excellent principle embodied in the Meeds bill, H.R. 5524, that whenever possible pipelines and similar facilities should be located in common corridors.

For Congress to permit the trans-Alaska project to proceed on the untested assumption that an additional trans-Canada oil pipeline project should follow also give unfortunate sanction to the very type of piecemeal planning and decisionmaking at the expense of the environment which Congress in the National Environmental Policy Act has sought to discourage.

We believe, Mr. Chairman, and members of the committee, that an expert, objective study, would demonstrate the validity of the common corridor concept as it could be applied in the form of a mid-continent oil delivery system. We respectfully urge that the committee report a measure that will bring about such a study in order to equip the Congress with the basis for deciding what course of action is truly in the national interest.

We are concerned by the fact that some interests are pressing Congress for very rapid action on this very complicated legislation, using the court's decision as their reason.

We find it especially ironic that blame has been placed on the court of appeals for ostensibly creating an emergency requiring hurried legislation, rather than putting any blame where it properly belongs, with the Department of the Interior and the oil industry. Both the Department and the oil industry were given clear warning 3 years ago when a preliminary injunction was issued in our case on the basis of the unambiguous language of the Mineral Leasing Act.

For 3 years they did nothing to bring the matter to the attention of the Congress and to seek a calm and dispassionate resolution.

For the Department and the oil industry now to ask Congress to abolish in a matter of days, without careful deliberation, laws that have been passed over a period of 100 years, is the height of arrogance. We trust that the Congress and this committee, mindful of its constitutional power over the public lands, will refuse to become a party to any such ill-conceived plan.

With regard to H.R. 5524 and title IV of H.R. 5441 relative to rights of way and the problem we face there, we urge that no action be taken on any general revision of the right-of-way laws until such time as the Interior Department has presented to the committee a catalogue of existing right-of-way laws and explanation of their current provisions, a description of the rights of way now in existence under the various laws, and evaluation of the shortcoming that are alleged to exist in each of the now existing laws.

I am sure you are aware, Mr. Chairman, that this litigation on the pipeline and these hearings have exposed a big barrel, not of worms, but of python-sized snakes. We don't know in this country what has gone on under our right-of-way laws. We need a thorough hearing and we concur there should be updating of those laws, but not on any rushed basis without the most complete interrogation of departmental witnesses and particularly witnesses from BLM, who carry this work

These facts must be fully brought to public light.

No action should be taken on any general revision of the right-of-way laws until such time as the Interior Department has provided on a day-to-day basis, by the committee.
this committee with a comprehensive description of the extent to which the public lands are now dedicated to private rights of way. Little good will result from any revision of the public land laws if it is merely superimposed upon an archaic structure that is permitted to continue substantially unabated.

No final action by Congress on any right-of-way legislation should be taken until complete and comprehensive environmental impact statements have been prepared by the Department of the Interior and all affected agencies. These, of course, must be made available to the public under standard NEPA procedures.

No action should be taken on any general revision of the right-of-way laws until the Interior Department has presented testimony on the manner in which right-of-way applications are now processed.

Any legislation which updates the existing right-of-way provisions must provide action-forcing mechanisms and standards to insure that the needless duplication of rights of way is avoided.

The suggestion—and this is carried over into the Senate's legislation as reported by the Senate Committee—that the Congress now yield broad authorities, broad discretionary authorities, to the Secretary of the Interior, in effect leaving it to the Department of the Interior to clean up the right-of-way mess, without further study, should not be entertained. It would give us imponderable problems and, indeed, it would only complicate and make more difficult the problem that we now face.

We believe it would be appropriate to require that, to the maximum extent feasible, oil and natural gas pipelines must be placed along the route of already existing pipelines. And unless the Secretary affirmatively establishes that it is not feasible and prudent to do so, pipelines carrying oil and gas from the same fields and areas adjacent thereto must be placed within the same common corridor.

Mr. Chairman, these comments, offered in response to the committee's invitation, are somewhat preliminary; they are not exhaustive. We have as a result of our involvement in this litigation, a great deal of information we want to make available to the committee. Some of this has been provided by the expert witnesses who have spoken on our behalf and on behalf of the other plaintiffs that have appeared before you.

We are greatly impressed with the thoroughness of the committee's deliberations. I must say that we are encouraged by your announcements this morning that you will be pursuing the factors that must be taken up, that are linked directly to these decisions, the Environmental Impact Statement of the Department of the Interior, much improved over what it was in its first version, some few dozen pages of environmental rationalizations.

We now have an environmental impact statement that represents a great improvement over that beginning but it is totally inconsistent with the requirements of NEPA in exploring fully the alternatives that we have in the Canadian alternatives. We commend the committee for proceeding as it has.

I very much thank you for the privilege of appearing here today.

Mr. MELCHER. Thank you very much, Stewart.

Re[illegible] the critique you will supply the committe on the envir[illegible]al impact statement, I would appreciate it if we could have it before the committee sometime next week. Would that be possible?

Mr. BRANDBORG. I believe it would, Mr. Chairman. If our counsel finds this difficult, we will be in touch with committee counsel or you. We shall shoot for that deadline.

Mr. MELCHER. I would appreciate that. I appreciate your appearance and Mr. Deane's appearance before us today. I have one or two questions.

First of all, if there were to be a Trans-Canadian pipeline rather than Trans-Alaska, from Prudhoe Bay to Valdez what would be your recommendation as a route through Alaska to tie into the Canadian portion of the route?

Mr. BRANDBORG. There are a number of alternatives, as you are aware. We have looked at these. I do not believe that in the absence of the type of definitive study that we hope Congress will make possible through authorizing of such investigations by a private, objective, scientifically constituted agency, that in the absence of those studies, we have a firm recommendation on any one alternative.

We need the facts as much as anyone else. We are overwhelmed by the stubborn resistance of this administration and by the oil industry to any exploration of these Canadian alternatives.

We know, as you are aware, I am sure, that there exists now pipelines that would take oil from Edmonton into markets in the Chicago area, the Midwest, and to the East. There are pipelines that would deliver oil to the Seattle area. So our principal focus is on the stretch of country between the North Slope and Edmonton.

Mr. Deane may have some elaboration on those alternatives and some of the things that we have taken into account.

Mr. DEANE. Mr. Chairman, there is, of course, primary focus in Canada on the Mackenzie Valley at the present time and then north and west of the Mackenzie Valley there have been two alternatives across Northeastern Alaska that have gotten the most attention.

One of them, along the Beaufort Sea Range and the other one south, crossing the Brooks Range and Richardson Mountains.

Then there is another alternative that has been given some attention, even by the oil companies, which would follow the Alaskan Highway, come down to Fairbanks, and follow the Alaskan Highway, and then cut across to Edmonton through a different portion of Canada.

There may be other alternatives. These all seem worthy of examination in depth. There are problems, physical problems, environmental problems, that one has to examine candidly in the effort to find the route that is best from both an environmental and economic standpoint.

As Brandborg said, we don't have the answers to build a specific recommendation on. There are good arguments, of course, for giving thorough consideration to an Alaskan Highway route because that is an area that has already been opened up and there would be probably substantially less damage to virgin country. Also, there would be accessibility to that route in terms of construction equipment and so on, because of the existing highway in part of it.

But we haven't advocated that route specifically up to the present time. We just feel it should be studied along with the Mackenzie Valley proposal that would cut across, or either of the two other alternatives that I mentioned.

Mr. MELCHER. Until the study would be made, you wouldn't know the depth of environmental damage that might be on any other route, either?

Mr. DEANE. I think that is correct, sir.

Mr. BRANDBORG. We do feel, Mr. Chairman, that the probabilities are very high that the principal Canadian alternative route would give substantially less damage than the Trans-Alaska proposal with its terrific hazards that would come from earthquakes.

As you know, the line is routed through the very heart of one of the earthquake, worst earthquake, zones on the continent. Landslides, spills into major tributaries, such as the Yukon, could all occur. There are mountain ranges that are very difficult to cross.

Add to that the hazards of shipment around the west coast, where tanker transportation would be very dangerous and where the Department of the Interior in the impact statement has indicated very clearly that we would inevitably have terrific oil spills that would make Santa Barbara look like kids' play.

So this is almost an assurance that the impact statement delivers to us. So we are in what we hope is a fully responsible role, looking at these to find the least damaging alternatives. We want to be realistic, and as we have indicated, we want to be pragmatic in finding the best way to get the oil from the North Slope to the markets where it is most badly needed in the United States and Canada.

Mr. MELCHER. One final question, and that is, I assume that you have also kept in mind a time frame if there were to be studies of additional routes. I am interested in what time frame you have considered.

Mr. BRANDBORG. We feel that the time frame, assuming that we could open up negotiations through the involvement of Congress now, the specific authorization for those negotiations to go forward with Canada, the Canadian Government, the time frame for the two projects, the two routings, is comparable. Perhaps 1½ to 2 years longer with the trans-Canadian alternatives, as opposed to the Alyeska proposal.

We see that we must return to the courts, The Wilderness Society and the other plaintiffs, to pursue this case for an indefinite period, if NEPA is not fulfilled. The one requirement of NEPA, as you are well aware, that is not met in these impact statements, is that all possible alternatives, economic, environmental, be fully explored. Thus far, those are not explored and in the absence of the Canadian studies, which could be authorized in a 9- or 6-month period within the legislation that you have before you, we must proceed to fight as hard as we can in the courts.

We are dedicated to this fight as a matter of principle in protecting the integrity of NEPA. So we promise to go back to the courts.

On the other hand, if there were a 9-month study, if Congress itself then made a decision within a given period, our principal argument, our principal legal basis for being in the court, the absence of

studies on the Canadian alternatives, would be dissolved. We would have no legal basis for going back to the courts with this issue.

We are anxious that the data be made available in a short period of time and that the matter be resolved. We seek this. We have been in this controversy for 3½ years and we are very earnest in wanting to see resolution of the problem that makes the best possible sense from the standpoint of the environment, the best possible sense from the standpoint of our national economy, our national security needs, and all of the other considerations that must be taken into account

Mr. MELCHER. Thank you very much.

The gentleman from Guam.

Mr. WON PAT. Thank you, Mr. Chairman.

Mr. Brandborg, you have very extensive testimony. I have not been able to go over it thoroughly at this time; however, am I correct in assuming that the full thrust of your testimony is that your organization is objecting to the trans-Alaska pipeline from the standpoint of environment or from the economic point of view?

Mr. BRANDBORG. Yes, you are correct in assuming that our primary concern is that of protecting the environment. Yes, because of that primary concern and the litigation we have been involved in for the last 3 years, it has been necessary for us to consider economic factors, those relating to national security, fuel supply needs in the very broad context.

So we, in going before the courts of this land, have had to enlist a host of highly qualified experts. These people come to us with academic and professional backgrounds that would qualify them to offer the courts the best expertise that is available in the land.

Similarly, we would want to offer the same kind of overall breadth in our testimony to the Congress.

So, because of a primary concern about the environment, because of the need to relate those concerns to the broader concern, we have become deeply involved in exploration of most of the facets of this question.

Mr. WON PAT. Isn't it a fact, also, that you are favoring, in other words, the trans-Canadian route?

Mr. BRANDBORG. Yes. We do favor this route as of now, from the information we have available. And as the committee knows, more than 50 studies have been published in Canada. The oil and gas interests up there have been carrying out investigations. The Canadian Government and the scientific groups have been carrying out field studies and investigations.

From the data now available, we feel, as I indicated a few moments ago, that the probabilities are very high that a trans-Canadian alternative, whichever was chosen after all of the data were complete, would be much less damaging to the environment than the very hazardous and severly damaging trans-Alaska route.

So we do favor that. We know, however, that more studies are in progress and if this Congress and if this committee could open the doors for free exchange of information between our country and Canada and the Canadian Government and the United States Government, we would have a lot more data on which to base our conclusion. We can't be sure any answers are absolutely firm until we have

the data. It is this quest for information, independent scientific studies, carried on not by the Department of the Interior—we don't want the fox to be in charge of the henhouse here—but independent, scientific studies that you can place your confidence in and we can place our confidence in.

Mr. WON PAT. And is it your recommendation or your organization's recommendation that Congress should not authorize the trans-Alaska pipeline, not until the Canadian route has been thoroughly explored?

Mr. BRANDBORG. Absolutely not. Yes, I agree.

Mr. WON PAT. Thank you, Mr. Chairman.

Mr. MELCHER. The gentleman from Ohio.

Mr. REGULA. Thank you, Mr. Chairman.

Mr. Brandborg, if the answers to the chairman's questions on the Canadian route were negative and it would indicate a long time frame to even consider that route, what would then be your suggestion as a means of getting this product to market?

Mr. BRANDBORG. Let me check as to my understanding of your question. If we found after due deliberate study that the Canadian alternatives were not viable, what would The Wilderness Society do?

Mr. REGULA. Right.

Mr. BRANDBORG. Is that the question, Mr. Regula?

Mr. REGULA. Yes.

Mr. BRANDBORG. Well, of course, it is hard for me as a paid representative, staff member of the Wilderness Society, to predict for my 15-member council, a dozen of whom have been in Alaska through the years, have been keenly involved in this issue and other issues over a period of the years, they have a lot of experience—it is hard for me to predict their decision.

I can say that if the independently arrived at information showed we did not have a viable Canadian alternative, we would be disappointed. I don't know that with the satisfaction of NEPA requirements for independent scientific studies, that we could do anything but give up on the issue. We might have other alternatives and we would have to look at those. But as I indicated, once NEPA is satisfied, once the scientific information is available, then the basis for our continuing litigation has been dissolved. We are without a legal foot to stand on.

We are confident from the studies and information we have available that, from an environmental standpoint, the Canadian alternatives are much better than the trans-Alaska system, with the attendant hazards of oil shipment down the west coast. A lot of scientists have been there, a lot of people have been in the field. We have a lot of fine data to support that contention. But if this thing should develop, for reasons unforeseen now, the Canadian alternatives were not feasible, were not viable, then we would not be in a position to pursue our case under NEPA. That is, if we had this full and exhaustive scientific study.

Mr. MELCHER. Would the gentlemen yield?

Mr. REGULA. Yes, Mr. Chairman.

Mr. MELCHER. First of all, the staff has attempted to find, to determine, if there is a viable—I am using your term—if there is a viable

interest on the part of the Canadian Government for a trans-Canadian pipeline at this time. The staff attempted through the Embassy here to arrive at some information.

We were told to go through normal procedures, through the State Department, which we are now doing.

If we find out there is no viable interest at this time from the Canadian Government, for any number of reasons, what is your recommendation then to the subcommittee?

Mr. BRANDBORG. What was the last part of your question? Would you repeat that for me, Mr. Chairman?

Mr. MELCHER. If there is no viable interest at this time by the Canadian Government, for any number of reasons, one of which may be the Canadian natives claim, for a trans-Canadian pipeline, what is your recommendation to the subcommittee then?

Mr. BRANDBORG. I would hope, Mr. Chairman, that a part of that determination would include a very careful study of what goes into an expression of interest in Canada. As I know you are aware, the oil and gas companies that are possibly to be interested and have been interested, certainly, in the past in the oil lines and the gas lines through Canada, are owned by some of the same companies that are pushing very hard and have been pushing since 1969, to public knowledge, for the trans-Alaska route.

I am impressed more every day with the great influence of the oil industry upon the entire world. Certainly, upon the administration of this Government. The oil industry, in my judgment, is the most dominant influence over our democratic processes and our executive branch, our Congress, that we see anywhere. It is almost omnipotent. And I think we are in the stage of getting behind what happens in Canada in the same way we are at the stage of getting behind what happens in the United States.

In short, if you come to Washington and talk to the chairman of this subcommittee and ask about this broad question, you get one set of conclusions and answers. If you talk to the president of Alyeska, you get another set. If you talk to the representative of the Wilderness Society, certainly, you get another viewpoint.

This is a part of a wholesome process. What I am suggestion here, Mr. Chairman, is that if we go into this kind of study, we expect that in Canada we will get some of the same influences appearing as have upon the decisions that are made for the Government, from the oil companies, that we have here and, above all, we will see a very strong influence. It is going to be very different to get the oil and gas companies up there, which some months back explored the Canadian alternatives with great enthusiasm, now to speak out objectively when their bosses in the United States are saying, in effect, "Cool it: don't provide information about the viability of these Canadian alternatives."

If the Canadian Government says, through that kind of investigation, "We are absolutely not interested," I think we face a new set of factors. Again, we would have to study those. We would want to pursue NEPA to the full extent of the law, to get fulfillment of NEPA. This would confront, bring to us, a new set of problems. Thus far, through a period of months, the Canadian Government has said, "Let's welcome the Americans."

The Ministry of Energy has been down here. He said: "If we can build this pipeline in a manner that is consistent with our long-standing good-neighbor relationships, we would like to explore it. We would like to even consider delivering oil and gas to the United States from our stocks for the year or year and a half longer than it may take to complete the Canadian route as opposed to the Alaska route."

We have had a lot of good expressions on this point and they stand up. At the same time, in Canada, you can go to people who are "prophets of gloom and doom," saying there is no real opportunity today, Mr. Chairman, to carry this thing forward.

So I think we want to explore that possible development fully, if it occurs. I can't predict what the Wilderness Society would do. I think we would want to look at our alternatives then. Maybe Mr. Deane has comments on it.

Mr. DEANE. Mr. Chairman, I would just like to voice 1 or 2 thoughts. There is an increasing indication that in due course a trans-Canada oil line is going to be built. The administration, even the President, has indicated that it favors this. Senator Jackson has indicated very strongly, on the other side, that he favors it, and has written language in the bill for a study that the Senate committee has reported.

If this is to be the case, it seems to me that it puts a somewhat different perspective on the problem before your committee, and I think that perhaps ought to be kept in mind. There was some very interesting testimony before the Senate Committee by the Vice President of the Mackenzie Valley Research Consortium that prepared the study your committee has on the Mackenzie Valley alternative.

He testified, among other things, that some of the member companies of that consortium would like very much to see oil from Alaska going through Canada now, that there is disagreement among the companies, including both American and Canadian companies, in that consortium. That disagreement has been, I think, somewhat muted by the considerations that Mr. Brandborg has alluded to.

There is a problem within the oil industry. But I think the ultimate expectation in the oil industry is there will be a Canadian pipeline built, if not now, in due course.

It would seem unfortunate to have that come about in addition to a trans-Alaska pipeline, if a thorough consideration of the matter of the issues now would show that pipelines going in two different directions that way are not really necessary or justified. If the economic and environmental interest of the United States would be better served by accelerating a Canadian project, as I say may be inevitable in any case, then it seems to me that would be a most important matter for Congress to consider.

I think the further factor which we alluded to in our testimony here, that there are expectations, certainly hopes, of large-scale oil discoveries in arctic Canada, plus, of course, additional oil discoveries in Alaska, that these hopes are to be realized, if necessary.

And, of course, to serve the needs of the United States, as well as Canada, we will need, I am sure, all of the oil that can be found

up there. Then it is important to have worked into your consideration of this matter the fact that further discovery and exploration in Arctic Canada is not going to occur unless there is the prospect of access to that oil. It is not conceivable to me that access would be provided by a trans-Alaska pipeline.

So I think the interest of Canada and the United States merge with respect to the development of this potential resource.

Furthermore, since gas has already been found in Canada, in very large quantities and will probably be found in additional quantities as well in Arctic Alaska, and since the weight of the oil industry and the gas industry now seems to favor a trans-Canada gasline, it would seem eminently logical to pursue the common corridor concept that Senator Jackson and Congressman Meeds and others are advocating most earnestly, and not let the opportunity go by to realize whatever economies in environmental costs and economic costs can be realized by putting the oil pipeline and gasline in the corridor.

Mr. MELCHER. I thank the gentleman from Ohio for yielding to me and I must relinquish the balance of my time.

Thank you.

Mr. REGULA. Mr. Chairman, I have two additional questions.

Mr. Brandborg, you have introduced here the statement about the study prepared by this consortium. Has this been made available to the committee?

Mr. MELCHER. Yes, it has.

Mr. BRANDBORG. Mr. Deane can elaborate on that briefly.

Mr. DEANE. As I understand it; yes, the committee does have copies of—I believe it is a 109-page Arctic oil feasibility, pipeline feasibility, study, prepared at a cost of some $7 million by the Mackenzie Valley Research Consortium.

I might point out the timetable, another point of Mr. Walden's testimony on the Senate side, the timetable and the cost for that proposed project are much more favorable than has been indicated by the administration and by other witnesses who have appeared representing oil companies that are no longer a party to that, although Atlantic-Richfield and British Petroleum of Ohio were in the Canadian consortium but withdrew quite recently.

Mr. REGULA. Does this study qualify under the NEPA requirements? In other words, does it evaluate environmental impact in addition to the economics and also the mechanics of constructing the Mackenzie Valley line?

Mr. DEANE. I would think the study would be a very major part of NEPA-type examination of alternatives, yes. Certainly. The assertion is made in the study that environmental considerations have been looked at but, of course, both economic and environmental are relevant under NEPA because of resource implications.

Mr. REGULA. Would you have an estimate on the time required to prepare a similar statement on the Mackenzie Valley to that which has already been prepared for the trans-Alaska line?

Mr. DEANE. Departmental impact statement?

Mr. REGULA. Yes.

Mr. DEANE. I couldn't offer such a statement. We could attempt to provide for the record some information on that.

Mr. BRANDBORG. Mr. Regula, on that, we are encouraged by the fact that much of the data are apparently available. So that an impact statement could, in the same way as the economic data, could be gathered in a relatively short period. We are not talking about years; we are talking about months, in other words.

Mr. DEANE. I might point out the Arctic Gas Consortium, which is proposing the gasline to come across, through Canada, through several hundred miles of northeastern Alaska, will have to meet the NEPA requirements for the Alaskan portion. The Mackenzie Valley people have cited the fact that this is a group that has done a great deal of research on routing through Alaska and that presumably this information would be available to the oil consortium for purposes of developing oil pipelines in the same corridor.

There have been environmental considerations worked into the Mackenzie Valley Oil Consortium study, but the study itself points out additional facts need to be found. However, their timetable, which is a 4-year completion timetable from the date of decision of sponsors to go in, includes a period at the beginning in which they say we would be able to meet the environmental requirements and other requirements for the granting of permits.

Mr. REGULA. When was this study made?

Mr. DEANE. This study was completed last year and made public in January of this year.

Mr. REGULA. Do you agree the real issue on the trans-Alaska pipeline is the environmental impact that TAPS would have on the State of Alaska?

Mr. DEANE. Well. I think that this is one of the very major considerations, certainly. Both on the State of Alaska and on. of course, the ocean waters along the west coast, all of the way down the west coast, actually. And perhaps even around and through the Panama Canal, if it ever goes that far.

Mr. REGULA. Given that conclusion. whether or not we approve an expansion of the right of way for TAPS, does not necessarily determine the environmental issue, does it?

Mr. DEANE. Well, the particular routing of a project is certainly going to be determined by the action of Congress and if the southern two-thirds of the route that Alyeska is proposing to utilize is, as everyone I think has conceeded, one of the riskiest earthquake zones on the North American Continent, then if the Canadian route, trans-Canada route, avoided that, this would certainly avert the danger of serious spillage in Alaska.

Mr. REGULA. I understand that. But isn't that the environmental issue and not the right-of-way issue?

Mr. DEANE. Well, I think that Congress at this time, eliminating the present right-of-way restriction in the Mineral Leasing Act——

Mr. REGULA. For Alaska only?

Mr. DEANE. For Alaska only. Well. this would in effect eliminate a major, one of the two major obstacles to proceeding with the trans-Alaska project. In other words, you would in effect be making a position——

Mr. REGULA. I understand that. That is the point I am leading to. Doesn't it narrow down to the real issue and that is, what is the environmental impact of this line on the State of Alaska, and isn't that what we are discussing?

Mr. DEANE. That is just one of the subjects we are discussing, in my opinion. We are discussing the environmental impact: (1) In the State of Alaska, (2) on the west coast and Alaska, and (3) Canada.

Mr. REGULA. I understand that. When I refer to the State of Alaska, I am really talking in terms of the entire delivery system.

Mr. DEANE. I think we are going beyond that. I think the issue is not solely environmental in the first place. The issue is also one of the best use of natural resources, which is embraced in NEPA, and also the economic considerations that are to be weighed by the Government in making a decision of this magnitude.

We don't feel, even though we are an environmental organization primarily, we don't feel the economic considerations can be ignored.

Mr. REGULA. But getting back to my original question, I don't quite see how the width of the right-of-way is the environmental issue. It seems to me that the real question that has to be resolved here is whether or not the environmental impact on a given route, namely, that of the trans-Alaska, plus the delivery system for tankers, is a wise decision, and that the right-of-way is a collateral issue.

I am just asking for your response to that.

Mr. BRANDBORG. I think everything that we have seen in the courts establishes that fact. There was an environmental issue, the fulfillment of NEPA, and the exploration of all of the alternatives, including the Canadian alternatives, that stands.

On the other hand was the question—is a permit that involves much more land, much wider span than 54 feet, legal? And the courts said no. They made a clear pronouncement on this.

We recognized this at the beginning and I reflected earlier in my testimony on the fact that the oil industry and the Department of the Interior, not only arrogantly presumed that they could override NEPA without anywhere near adequate exploration of the Canadian alternatives; they couldn't even understand that 54 feet is 54 feet, what the Mineral Leasing Act is very explicit in requiring as a width limitation.

So we see, in a way, that is totally irresponsible in meeting an obligation to Congress, or to the Department of the Interior, and the laws of this Land. The oil industry and the Department have gone ahead, flaunting the law and we used up 3 years at a time when the industry showed an incapability of meeting day-to-day fuel needs. We have spent 3 years because of their disregard of the laws of this Land.

And without taking into consideration the population growth curves and the growth curves that go upward, showing your increasing needs for petroleum and fuel in this period, to the point where today we sit here looking at each other with what may be contrived shortages. This seems now to be a question, what shortages of gas and oil for everyday use?

Mr. REGULA. Would you object to our resolving the right-of-way issue so we can focus our attention on the environmental question?

Mr. BRANDBORG. The two are linked. And for the Congress now to go ahead and say, "Yes, we will clear the way for you to issue an Alaska pipeline through resolving the right-of-way issue," is inconsistent with the need for more focus to fulfill NEPA.

In other words, the NEPA requirement to have complete economic and biological data is unfulfilled.

Mr. DEANE. Mr. Regula, my own assumption is that if Congress makes a determination now along the lines you are asking about that that will be the end of the Congress involvement, that it then goes to the courts. Is that what you are——

Mr. REGULA. This is the testimony of Secretary Whitaker, as a matter of fact, as I recall, that the Department of Interior is perfectly willing to stand on a court decision on the NEPA. They are not asking this committee or the Congress to take any action on the NEPA statement.

Mr. DEANE. They are willing to do this but our answer would be that we are not because the judicial process, at least insofar as it has developed so far, the interpretation of NEPA—I am not a lawyer—but my understanding is that it is unlikely, certainly, that the courts could perform or would perform the role that we are hopeful the Congress will perform in examining the broader issue here of the alternative to Canada, or the alternatives through Canada.

Mr. REGULA. You are really saying we should use the right-of-way question as a means of delaying action on this until the Canadian alternative can be examined?

Mr. DEANE. That is not what we are really saying. What we are really saying is, because this question has presented itself to Congress, Congress has the opportunity now to do the broad-scale examination of alternatives that the Interior Department has never undertaken and refused to undertake, and on that basis Congress can bring rationality and objectivity and a broad view into the picture where the administration has failed to do this.

Mr. BRANDBORG. Compensating for the failure of the Interior Department and the executive branch to fulfill the requirements of NEPA. We are involved in the case because of our desire to get the facts out. When Mr. Whitaker assures you we should takes these things separately, that Congress should go ahead and approve widening of the rights-of-way or any delegation of our authority to the Secretary of the Interior, at a time when the Secretary and the Department have failed to comply with the Mineral Leasing Act first, and failed to comply with the requirements of NEPA, is not any great service to the country, in our judgment.

We come back to the fact that Congress in this instance is faced with the failure of the executive branch. We are asking you to compensate in your good wisdom and your good judgment and we recognize that you, like us, must have comprehensive, independently arrived at objective scientific study of the Canadian alternative before conclusions can be drawn.

Mr. REGULA. In your judgment, if the right-of-way issue is resolved that will not be accomplished—that is, the study of the Mackenzie Valley route?

Mr. BRANDBORG. Precisely.

Mr. MELCHER. The gentleman from Alaska.

Mr. YOUNG. Thank you, Mr. Chairman.

I would like to compliment the witness. I would like to take a line from my good friend, Sam Steiger, but I won't. I appreciate

your testimony. There are some points, of course, I heartily disagree with.

I think we should establish two things. The time frame is important and, myself, personally, because I am such an advocate of the pipeline, I believe in it. You are inferring that the oil companies are playing a major role in this in Congress. I happen to believe I am right; you happen to believe you are right. And I think we should do it as gentlemen and not cast dispersions about connections here and there.

I think this is not conducive to your standing as an executive director for the Society.

But you keep referring to the Interior has not fulfilled the NEPA requirements. Yet, it has been to court twice. The first time you lost by law and you appealed it and you lost again on the environmental issue. Now, if we follow the letter of the law, which you cited before, the right of way—the right-of-way, you said, this is the letter of the law and we were found wrong. Mr. Whitaker has said, let's go to court and he is willing to stand on their report, their environmental impact statement. And you are not because you know in court you will lose.

If we are going to follow the law—what I am saying is the law has been written by Congress and the courts have decided the Department has followed that law, have they not?

Mr. DEANE. No, sir; they have not.

Mr. BRANDBORG. They have not.

Mr. YOUNG. What did they do?

Mr. DEANE. The court of appeals explicitly deferred judgment on the National Environment Policy Act questions.

Mr. YOUNG. That was part of the suit, was it not?

Mr. DEANE. It is part of the suit, and still pending.

Mr. YOUNG. You will go to court again?

Mr. BRANDBORG. Without prejudice.

Mr. YOUNG. Let's say you are not willing to go to court now.

Mr. DEANE. We don't have occasion to go to court.

Mr. YOUNG. If we act on the right of way, grant the width, we will end up in court, but you don't want this?

Mr. DEANE. We are prepared to go back to court if necessary.

Mr. YOUNG. But you don't want this?

Mr. DEANE. I wouldn't put it that way. I think what we would prefer—and this is the whole thrust of our testimony—is that the Legislature, Congress, exercise its prerogative of taking over the responsibility for the portion of NEPA which in our court case we have alleged the administration has failed to carry out in accordance with the requirement of the law.

Again, I am not a lawyer, but I think the substance of the testimony by the attorney who spoke for the three plaintiffs in the case here was the focus in the courts on procedural aspects and that under NEPA, there is no compulsion on the administration to, after it has gone through the required procedures, adequate examination and so on and so forth, to do anything else other than what it has done already.

If the environmental impact statement had been heeded by the administration itself, even to the extent that the environmental im-

pact statement goes now in this thing, I think the administration might very well have come up with a different position.

But I think it has gone through the motions and, unfortunately, the expectation of the lawyers appears to be that this could occur again. We think the public interest issues here in terms of of supplying the United States with this vital resource, minimizing environmental damage, are much larger than the administration has chosen to recognize, and that the only likely way of having this recognized is through action by Congress at this time.

Mr. YOUNG. If we have the 6-month study and the study finds—you are talking about an independent study. This worries me because I am trying to figure out who is going to make a study who is independent. We have the National Science Foundation and a few other people. It bothers me. No one is really independent. Someone has an ax to grind somewhere along the line—your group, Congress, the oil group, somebody.

But let's say the study went against the Canadian route. We have everything in hand, economics. security, and it balanced out the Alaska route was the best route. You say you won't go to court?

Mr. BRANDBORG. We say that the courts, with the completion of an unbiased, objective study. And I, Mr. Young, believe there are plenty of scientists that can be retained by the Congress to complete this high-level objective study, essentially without bias.

Mr. YOUNG. This worries me a little bit. You refer to the Mackenzie study. I know the study. I know there are only——

Mr. BRANDBORG. I am not citing it or endorsing the Mackenzie study as the epitome of a scientific investigation in the sense I would recommend it as the unbiased study for consideration of this Congress. I recognize there are some valid data presented by it and they certainly must be considered because they give us a real hope for the Canadian alternatives.

But the independent study, if we can get it, will provide not only the Congress, but the courts, a basis for evaluating this very important legal point that is——

Mr. YOUNG. Do you think they can do this?

Mr. BRANDBORG [continuing]. That is so important to our litigation. If we have an independent study, the requirements of NEPA will have been fulfilled and we will no longer have a basis for pursuing our litigation. If they should then recommend, the Congress should recommend, that the Canadian study was not viable, we would have to face that question. We have no basis legally in the courts to proceed, once that scientific study is accomplished.

Mr. YOUNG. You think the study can be done in 6 months?

Mr. BRANDBORG. We would hope for a 9-month study. We feel the study can be accomplished in six months.

Mr. YOUNG. You referred, awhile ago, to a lot of testimony, a lot of information concerning the Alaska route—I mean the Canadian route data. I would like to have that information if there is lots of it. We requested it before and I don't think we received any data other than the one study.

Mr. BRANDBORG. I spoke of some 50 studies that had been completed in Canada, through a period of the last 12 months. They,

and additional studies, are being published and made available and I hope they can be made available to this committee by the Government of Canada and the various participants. I see no problem in trying to bring those to you as quickly as possible.

Mr. YOUNG. Mr. Chairman, there is a report, with your permission, I would like to make a part of the testimony, part of our record of this committee. This report was made by my good Senator from Alaska, Senator Stevens, on the Canadian visit, where they met different individuals and I think it would be informative to the committee as part of the record. It is in the Congressional Record now, but I think it would be much better if it was in our record, if we can do this.

Mr. MELCHER. Without objection, the statement by Senator Stevens on his recent visit to Ottawa will be made a part of the record at this point.

Mr. YOUNG. The reason I have done this, Mr. Chairman, Stewart's testimony refers to the willingness of the Canadian Government to enter into negotiations, and this is a recent meeting. Even my friend, Mr. Udall, says there is some good news and bad news from the meetings and I think it should be part of the record.

Mr. MELCHER. Hearing no objection, so ordered.

(Senator Stevens' report above-referred to, from Congressional Record, S10371 through S10376, follows:)

[From the Congressional Record, June 5, 1973]

REPORT TO THE SENATE ON CONFERENCE WITH CANADIAN OFFICIALS

Mr. STEVENS. Mr. President, I have just returned from Ottawa, Canada, where I joined in six other Members of Congress in participating in a meeting organized by the Canadian Parliamentary Center for Foreign Affairs and Trade. This is a private Canadian organization, partially funded by the Parliament of Canada.

During this meeting, it was a privilege to meet with the Honorable Donald Macdonald, Minister of Energy, Mines and Resources, and the Honorable Jean Chretien, Minister of Indian Affairs and Northern Development. We also met with Canadian officials who deal with Canada's National Energy policies and the problems of Canada's energy supplies. In addition, we met with Canadian newsmen and leaders of Canadian industry. I have attached a list of those with whom we met to this statement—the list is not all inclusive because we met additional Canadian officials—from Parliament and the Federal Government—and other distinguished Canadians at social gatherings hosted by Adolph Schmidt, American Ambassador to Canada and Mr. William H. Johnson, Deputy Chief of the U.S. Mission of the U.S. Embassy in Ottawa.

Mr. President, I ask unanimous consent that the list be printed at this point in the Record.

There being no objection, the list was ordered to be printed in the Record, as follows:

"CANADIAN PARLIAMENTARY CENTER FOR FOREIGN AFFAIRS AND TRADE

"In Attendance—June 1, 1973

"CANADA

"A. Brown—Coal Section, Energy Development Sector, Department of Energy, Mines and Resources, Ottawa.

"J. Read—Coal Section, Energy Development Sector, Department of Energy, Mines and Resources, Ottawa.

"O. J. C. Runnalls—Senior Adviser, Uranium and Nuclear Energy, Department of Energy, Mines and Resources.

"W. H. Hopper—Director, Energy Policy, Department of Energy, Mines and Resources.

"Wm. A. Scotland—Senior Adviser, Oil & Gas—Canada-U.S., Department of Energy, Mines and Resources.

"R. B. Toombs—Senior Adviser, Oil & Gas—Canada, Department of Energy, Mines and Resources.

"G. M. MacNabb—Senior Assistant Deputy Minister, Department of Energy, Mines and Resources.

"Douglas M. Fraser—Vice-Chairman, National Energy Board.

"R. Priddle—Director, Oil Policy Branch, National Energy Board.

"A. Boyd Gilmour—Assistant Director, Economics, National Energy Board.

"R. L. Borden—Chief, International Resources, Industry, Trade and Commerce.

"D. W. Fulford—Director, Transport, Communications Division, Department of External Affairs.

"R. G. Blackburn—First Secretary, Canadian Embassy, Washington.

"E. W. Humphrys—Senior Electrical Advisor, Energy, Department of Energy, Mines and Resources.

"Peter Dobell—Parliamentary Centre, Ottawa."

Mr. STEVENS. Mr. President, no formal statements were made in those meetings, and again I emphasize they were organized by the center under the guidance of Peter Dobell, a distinguished former members of the Canadian Foreign Service. However, I have decided to set forth for the Senate my impressions of these meetings and my conclusions based upon them. Obviously, these meetings were important to our future deliberations regarding pipelines and transportation of oil or gas from the Alaskan Arctic to markets in the "South 48."

At the outset let me state that the most important consideration in the determination of the merits of the of the Alaskan route for the pipeline as compared to the Canadian route is time, and as a result of this meeting, it is clear to me that Canadian officials agree with Secretary Morton that it will take 3–5 yars longer to construct an oil pipeline through Canada than it will through Alaska.

This conclusion is inescapable from the following minimum timetable the Canadian officials outlined for the oil pipeline:

First, the National Energy Board of Canada will be prepared to accept applications for a pipeline at the end of this year.

Second, it would take Canadian industry about 1 to 2 years to prepare an application for the Canadian right-of-way and a certificate of convenience and necessity. The right-of-way application is filed with the department of Indian affairs and northern development; the certificate of convenience and necessity must be obtained from the national energy board—there would also have to be an application to the U.S. Department of the Interior for the portion of the right-of-way in Alaska and an application to the Federal Power Commission in the United States. It was repeatedly emphasized that nothing could be done by Canadian officials until such an application was field.

Third. The NEB would take from 1 to 2 years to review any applications filed with it—and would, in all probability, have public hearings on such an application. The Department of Indian Affairs and Northern Development would probably appoint a three man commission to review any application for a pipeline right-of-way—this would take at least 1 year.

Fourth. Highly important in this problem of delay if the Canadian route were selected for the pipeline is the issue of Canadian native claims. Canadian natives have claimed that two treaties dealing with their rights are invalid. In addition, we were informed that Canadian Eskimos have not been the beneficiaries of any treaty; consequently, Canadian Eskimos most certainly have claims that must be dealth with.

Industry representatives told us that no corporation would proceed with a pipeline until the Canadian natives' claims were resolved by the House of Commons—and in doing so, they emphasized that the question goes beyond the validity of any right of way, it also goes to the validity of the oil and gas leases issued to the industry in the Northern Territories.

In other words, the 3 to 5 year delay in the time to obtain authorization of the Canadian oil pipeline right of way and certificate of necessity does not include any of the unforeseeable delays in the processing of the two applications—and, in particular, it assumes that there will be no extraordinary delay in the processing of the Canadian native claims. The United States experience

does not support the conclusion that this is either rational or reasonable. As one who was deeply involved in the Alaska Native claims issue I feel that the progress which is being made in Canada on this issue, despite the assurances of the Minister of Indian Affairs and Northern Development, does not warrant a conclusion that the Canadian native claims will be disposed of preemptorily. And, attached to this statement is an excerpt from the testimony I gave to the Senate Interior Committee on this subject on May 2, 1973 and the statement I made to the Joint Economic Committee on June 22, 1972.

Mr. President, I ask unanimous consent that the excerpts be printed in the Record at this point.

There being no objection, the excerpts were ordered to be printed in the Record, as follows:

"EXCERPT FROM STATEMENT OF SENATOR TED STEVENS BEFORE THE JOINT ECONOMIC COMMITTEE ON JUNE 22, 1972

"One of the most important developments which would likely delay any proposed trans-Canada oil pipeline is the land claims of Canada's Native population. In recent years the northern Natives of Canada have organized to press for settlement of their treaty and aboriginal rights, much as Alaska Natives did in the recent past.

"In 1968, Canada's Indian population numbered over 237,000, although most of this number have assimilated into Canadian life and live in the more urban provinces. Nevertheless, many groups still have outstanding land claims with the federal government. In 1899 and 1921, Treaties 8 and 11 were negotiated with the Indians of the MacKenzie District in the Northwest Territories, but were never enacted. With other Indians no treaties were ever enacted at all. Finally, with a third group of Indians, no treaties wer enterel into, in spite of understandings that such treaties would be negotiated. In 1912 complementary federal and Quebec statutes effected a northern extension of the boundaries of the Quebec province. However, although provisions in both statutes record Quebec's recognition of the rights of the Indian inhabitants of the region and its pledge to obtain surrender of such claims by some kind of settlement, no settlement was ever negotiated.

"Thus, the claims of the various groups of Canadian Natives vary considerably. The judicial success of Canadian Indians whose ancestors were promised a settlement but which was never negotiated has been very slim. (See MacGuigan, Mark M., "Human Rights and the Native Peoples of Canada" 46 CANADA BAR REVIEW 695–711 (1968).

"The treaties signed in 1899 and 1921 with the Indians of the MacKenzie District of the Northwest Territories (the area, it should be noted, through which the proposed oil and gas lines would travel) granted the Indians one square mile of land for each family of five. However, these obligations were never fulfilled. A large part of the 8,000 or so Indian population in the Northwest Territories is covered by these two treaties.

"In 1959 a Royal Commission was appointed by the federal government which recommended an alternative to granting the land in the form of the payment of $25 million, plus the annual payment of one-half of one percent of any revenues received by the Crown for mineral, gas, and oil reserves in the area of the treaties. This recommendation also was never implemented.

"Finally, other Indians are expected to seek settlements on the basis of aboriginal rights, the foundation for the claims of Alaska's Natives. This would include the Eskimos of the Arctic regions and the Indians of the northern Yukon, particularly those in the path of the proposed pipelines from Prudhoe Bay. Most of Canada's present Eskimo population of 15,000 resides in the Northwest Territories and possesses only aboriginal claims.

"By legislation enacted in 1965, the Department of Indian Affairs and Northern Development was formed on the federal level with the responsibility of administering Indian Affairs.

"The Northern Natives of Canada have at present organized three groups to settle treaty and aboriginal rights. The largest and best organized group is the Indian Brotherhood of the Northwest Territories. The Brotherhood is composed of Treaty Indians who presently live on reservations and receive a stipend from the government.

"The second group is the Inult Tapirisat which consists of Eskimos and also receives governmental assistance.

"The third group is the Committee for Original Peoples Entitlement (COPE) consisting of Eskimos, Metis (part Native, part white), and non-treaty Indians (i.e., Indians who have left the reservation and no longer receive governmental funds).

"The Canadian government has not taken a positive position toward the various treaty and aboriginal claims of Canada's Indians. Prime Minister Pierre Trudeau is on record as stating that the Indians' claims should be dealth with on their legal and not on a basis of moral rights—a statement indicating that he is prepared to deal with the treaty Indians, but not the non-treaty ones—the Eskimos and the Metis. (Oilweek, April 10, 1972).

"Moreover, Jean Chretien, Minister of Indian Affairs and Northern Development, in a May 18, 1972 appearance before the House of Commons declared that his government was "prepared to abide by the treaties and we have offered two options to the Indians: either their lands or a compensation. They have not made a choice." (House of Commons Debates, 4th Session, 28th Parliament, May 18, 1972, Vol. 116, P. 2384). Thus, it seems obvious that the Canadian Government is not willing to go beyond its original 1899 and 1921 treaty obligations concerning land allotments, or the settlement figure of $25 million proposed in 1959.

"Likewise, Mr. Chretien, in another dialogue this very month (June 5, 1972) in the House of Commons with Robert Stanfield, leader of the Opposition, declared that, although his government was prepared at any time to fulfill its treaties with the Indians of the Northwest Territories, that it intended to proceed with its plans for the development of the North without any effort to settle the question of aboriginal rights. Mr. Chretien declared that only if the Supreme Court of Canada gives a ruling directly with regard to aboriginal rights would the government "take the situation in hand and decide what ought to be done." (House of Commons Debates, 4th Session, 28th Parliament June 5, 1972, Vol. 116, p. 2836).

"The activities of the three Indian groups, however, indicate that they will not accept the present offers of the government, but will press for a settlement to include compensation for their aboriginal claims. Indeed, all of the various chapters of the Indian Brotherhood have refused to meet with the Indian Claims Commissioner regarding settlement of their treaty rights.

"The successful efforts of the Alaska Federation of Natives in obtaining a generous settlement of 40 million acres of land, $500 million in cash, and gas and oil royalty payments up to another $500 million have served as a highly instructive model for the Canadian Indian groups.

"The declared aim of all three Indian groups is at present "no settlement, no pipeline!" (The Financial Post, Toronto, April 15, 1972), referring to the proposed oil and gas pipelines down the MacKenzie Valley. The groups plan to go to court to halt construction of any such pipelines if they begin before the Natives have received the kind of settlements they are seeking to both their treaty and aboriginal claims. Thus, obstructing law suits are planned to block any such projects, much as the law suit filed in April, 1970, by five Alaskan Native villages resulting in an injunction barring the Secretary of the Interior from issuing a pipeline permit.

"It can be expected that the legal battles involved with any such litigation could reach to the Canadian Supreme Court. At present, lawyers for the groups representing treaty Indians are researching the expectations and understandings of the Indians who signed the 1899 and 1921 treaties to portray their belief that the wording of the treaties might not have represented what the signing chiefs thought they were approving. The non-treaty Indians, on the other hand, are trying to win acknowledgement that their aboriginal claims are indeed valid. The fact that the U.S. Congress explicity acknowledged the validity of similar claims by its passage of the Alaskan Native Claims Settlement Act last December should provide important legal precedent in this regard.

"Also it should be noted that concern has grown greatly in this country with the manner in which our Indian population was treated in past eras. This growing sentiment can be seen visibly by comparing the generous settlement terms which the U.S. Congress finally accepted as part of Alaskan Native Claims Settlement Act and the provisions of a similar bill in the 91st Congress

which passed the Senate but not the House of Representatives. That bill passed only 16 months earlier, offered the Alaskan Natives only 11 to 15 million acres of land and $1 billion compared to the 40 million acres and $1 billion agreed to 16 months later. In short, although the Canadian government may not now be prepared to accept the validity of the aboriginal claims of its Natives, political reality and public opinion may force it at a later date to accept these claims at a much higher, more costly settlement figure than it could now negotiate.

"In summation, the Native groups of Canada are now organizing to press for the settlement of their treaty and aboriginal claims. Whether they can build up sufficient public support and develop the legal arguments necessary for blocking a trans-Canada pipeline until their claims are settled to their satisfaction is impossible to forecast. However, it does seem plain that Canada's Natives, drawing upon the experience of Alaskan Natives, should be able to significantly delay the construction of any pipeline through Canada, be it oil or natural gas."

"EXCERPT FROM STATEMENT OF SENATOR TED STEVENS

"Recent reports confirm the seriousness of the Canadian Land Claims. It is now apparent that Canada's northern natives have launched an all out drive to establish their right to land. The key element of this drive is native opposition to government approval of construction of a MacKenzie Valley pipeline. With the cry of "no settlement, no pipeline" (The Financial Post, Toronto, April 15, 1972) Canada's natives have raised this issue, which the United States has just taken 15 years to resolve. The Prime Minister of Canada has recently agreed to negotiate treaty claims with the Indians for a cash land settlement, including perpetual royalties on natural resources. However, Mr. Trudeau at the same time refused to say definitely that aboriginal rights existed legally. These treaties involve nearly 7,000 Indians in the territories. 13,000 Eskimos have no treaties, nor do 5,000 Metis, living side by side with the Indians in the MacKenzie area. In any event, the Indians want to do more than just negotiate their treaty claims, and rightfully so. They are organizing with the Eskimos and Metis to settle their aboriginal land claims. It took this country five years to settle Alaska's native claims. The natives of Canada have watched Alaska's 60,000 natives win a 962.5 million dollar cash and royalty payments settlement plus title to 40 million acres of land. Any major proposed trans-Canada pipeline from Alaska to the Lower 48 would have international repercussions that the Canadian Natives could rightfully use to gain additional leverage. By the same token, such Canadian native land claims would doubtless delay the construction of any trans-Canadian pipeline.

"Another potentially serious setback for the pipeline is court action recently taken by the Northwest Territories Indian Brotherhood that has imposed a temporary land freeze on the thousands of square miles of treaty lands there. The Indians sought an injunction against any land disposal in the 400,000 square mile area until their land claims settlement is reached. The territorial Supreme Court imposed a three month land freeze until a ruling on the injunction can be handed down. This lawsuit is breaking new legal ground and is apparently an issue of first impression in that jurisdiction. But if the injunction is issued by the Supreme Court of the Northwest Territory, a long term land freeze will probably result.

"In his testimony before the Joint Economic Committee, Mr. Donald Wright the President of the Alaska Federation of Natives, stated:

"'We have learned from hard experience that it is imperative to settle the question of aboriginal land rights prior to the construction of any pipelines. The resolution of this issue in Canada is still in its early stages and nothing should be done to undermine its opportunity for successful reolution. To advocate a trans-Canada pipeline must include as its premise a fair settlement of Canadian Indian land claims prior to any construction taking place. Based on our experience in the United States, this will require a number of years of careful and thorough negotiation, perhaps even litigation.'

"And this is only one major delay. A trans-Canada pipeline would raise significant environmental issues where there is currently no established form for dealing with them and could involve regulatory and jurisdictional delays beyond any reliable estimate. Recently Canadian Arctic Gas Limited President

Vernon L. Horte expressed confusion on Canadian federal hearing procedures for the construction application.

"The Northwest Territories Minister of Indian Affairs and Northern Development, Jean Chretien, stated that his department will require a separate hearing from that of the National Energy Board. In his speech of March 15, Mr. Chretien stated:

"'The Council of the Northwest Territories has formally given its support to the construction of a systems corridor—including a pipeline through the Mackenzie Valley, provided there is involvement of the N.W.T. Government, optimum employment of northerners, compensation to anyone adversely affected and adequate protection of the environment. . . .

"'I have decided that public hearings will be held under the Territorial Lands Act at an appropriate time after the Department receives an application for a pipeline right-of-way covering Crown lands which are within the Territories and under my administration as Minister of the Department of Indian Affairs and Northern Development.

"'The purpose of this enquiry will be to assess the regional, socio-economic and environmental implications arising out of the construction and operation of a major pipeline in the Territories.

"'These hearings will be held in addition to those required by law under the National Energy Board Act subsequent to an application of the NEB for a Certificate of Public Convenience and Necessity . . .

"' . . . any application to my Department for a pipeline right-of-way must be based on a viable project proposal and must further be accompanied by detailed documentation of research pertaining to those areas of social and environmental concern enunciated in the Government's Guidelines for Northern Pipelines.

"' . . . It is my intention to ensure that any hearings under the Territorial Lands Act are structured in such a manner that all those interested in the project at the time would have an adequate opportunity to be represented and to make their views known. In order to ensure that northern residents, especially the native people, can make a contribution, I would expect that the hearings would be held in part at least in northern centres particularly those closest to the proposed pipeline routes.'

"A national energy policy for Canada, which may come within the next few months, must be determined before any hearings on the pipeline project will be scheduled. In fact, Mr. Horte, the President of Canadian Arctic Gas Limited, expressed concern that the trans-Canada project might be delayed long enough to require North Slope natural gas to be shipped down through Alaska!"

Mr. STEVENS. Mr. President, it is important, I feel, to try to interpret the statements and actions of our Canadian friends and neighbors from their point of view. In the first place, Canada has sufficient oil reserves to meet her future demand. Canada has at least 10 billion barrels of known petroleum reserves and an estimated potential of 120 billion barrels. Canada produced 493 million barrels in 1971 and exported 308 million barrels to the United States in that year. Canada's natural gas reserves indicate a more positive picture. Canada estimates proved reserve at 53 trillion cubic feet, with potential reserves at 725 trillion cubic feet of gas. Canada produced only 2.5 trillion cubic feet of natural gas in 1971 and exported 0.9 trillion cubic feet of natural gas to the United States in that period.

No significant oil discoveries have been made in Canada's McKenzie River area—on the contrary, significant gas discoveries, not included in Canada's gas potential of 725 trillion cubic feet of gas, have been made in the McKenzie River area. Clearly, the Canadian national interest lies in the transportation of natural gas—not petroleum.

The major national issue involved in the Canadian appraisal of the Alaskan pipeline is the potential tanker traffic to the Puget Sound with Alaska crude for refineries in Washington State. It was made very plain to me that the Canadian National Government was prepared to commit western Canadian, low sulfur—sweet—crude oil to the Puget Sound to obtain an agreement from the United States that supertankers would not serve Puget Sound. This is an offer we may not be able to refuse.

It is clear that tanker traffic is now a potential political hazard for the Trudeau government. Canada has indicated it will send a note to the United States protesting the proposed tanker traffic to serve the Eastport, Maine, refinery.

Most significantly, the Canadian Government has enunciated another problem with political and economic considerations. It is apparent that the Canadian Government would not permit an oil pipeline and a gas pipeline to be constructed simultaneously through Canada to transport Alaskan oil and gas to U.S. markets. It was pointed out to us that if both pipelines were constructed simultaneously there would be a severe drain on available Canadian manpower. In addition, challenge has been made to Canada's ability to finance a gas pipeline—let alone a gas pipeline and an oil pipeline at the same time. Canada is also moving forward with other public works projects, such as the James Bay hydroelectric project which will require $6 billion in financing and 6,500 workers per year for 12 years. It is not possible for Canada to finance projects such as James Bay hydro and both pipelines in the decade ahead. This, as I said, most significant decision means that if it was determined that Alaskan oil should go through Canada it would be at last until 1979 before construction of a gas pipeline could be commenced. Obviously, the people of the Midwest cannot wait 10 years to receive any further increment in natural gas supplies. The one great hope that the United States Midwest has for additional natural gas supply lies in the pipeline to tap Alaskan and Mackenzie River reserves for export to the South 48.

Canada is ready to proceed to process a gas pipeline application. Canadian Gas Artice Study Ltd. and Alaskan Arctic Gas Study Co. have spent about $30 million for research on the Canadian gas pipeline. It is anticipated that this study, which has taken 3 years to date, will be reviewed for about 18 months, and that the gas line could be constructed in about 3 years. In other words, if the Alaska pipeline is started in 1974 and the application for the Canadian gas line is filed in 1974, it is anticipated that the gas line will be completed sometime in the late 1978—just in time to commence deliveries of North Slope natural gas—and at least 5 years before gas could be delivered if both the oil and gas lines are required to be located in Canada. Moreover, it is entirely possible that MacKenzie River gas will be exported to U.S. consumers as soon as the gas pipeline reaches the MacKenzie River—2 years after the Alaskan pipeline commences. This would make additional gas supplies available to the U.S. Midwest by 1975.

Canadian needs for a gasline are great—the Maskenzie River discoveries can support about 1 billion feet per day production—but at least 4 billion feet per day is required to support the trans-Canada gas pipeline of 48 inches. This additional supply can come only from Prudhoe Bay gas reserves. Furthermore, while Canada has no immediate need for Mackenzie River natural gas, it is clear that in about 10 years the Mackenzie River deposits will be needed to fulfill Canadian needs. Natural gas production in the meantime would probably be available for export to the United States—thereby augmenting Midwest supplies and actually providing needed hydrocarbon fossil fuel to the Midwest and East of the United States at least 5 to 8 years earlier than it could delivered if both pipelines are built through Canada.

There are other delay factors—for instance, Canada will not license any pipeline which will disturb gravity flows of rivers crossed by a pipeline. This stipulation alone will require significant research and design of engineering features to prevent disturbance of gravity flow. Furthermore, it was seriously questioned whether Canada has available, without significant environmental damage, enough gravel to supply a footing for two pipelines in Canada and, in my opinion, proponents of the Canadian oil pipeline have ignored completely the warnings being issued by responsible Canadian officials concerning the problems the Canadian gasline will face.

Mr. President, the Toronto Globe and Mail has reported the controversy concerning the problems of financing gas pipeline and has editorially suggested that even the gas pipeline should be reviewed by the House of Commons. I ask unanimous consent that both the article of Terrance Wills and the Globe and Mail editorial on this subject be printed at the end of my remarks.

The PRESIDING OFFICER. Without objection, it is so ordered.

Mr. STEVENS. Mr. President, let me summarize the results of the meetings we held in Canada last week:

First, it will take at least 3 to 5 years longer to construct an oil pipeline through Canada.

Second, Canadian Native claims are a significant cloud on all oil company activity in the Mackenzie River area and these claims must be honorably

settled if a gasline is to proceed. If both lines were to be proposed for the Canadian right-of-way, the delay would be even more serious, because it is obvious to me that the Canadian Government is apprehensive about Canadian Native claims.

Third, Puget Sound tanker traffic is a real—political—obstacle to the Alaskan pipeline proposal.

Fourth, the Canadian Government's opposition to constructing both the oil and gas pipelines simultaneously can only increase the delay in making available Alaskan natural gas supplies to the U.S. Midwest.

Mr. President, the Alaskan pipeline route has been thoroughly studied. An application has been filed for the appropriate right-of-way.

No delay is necessary for the Alaskan Native claims—we have solved that problem already. And, there is no question that the U.S. capital market could support the Alaskan oil line even while the Canadian capital market financed the gas line. Above all, Mr. President, there is no additional delay to examine the route involved and no question about support from all Alaskans—Native and nonnative—for the Alaskan pipeline.

I am grateful to the Canadian officials who met with us and to Peter Dobell and his staff for organizing the conference. I will be expounding at other times on the need for Alaskan oil now—if it had not been delayed we would not have any shortages today—but this is an issue for another occasion to address the Senate. Suffice it to say for now that Alaskan oil and Alaskan gas will reach U.S. markets sooner, and with less expense in the long run, if this Congress enacts legislation to modify the 1920 Mineral Leasing Act right-of-way limitations and takes action to assure that the Alaskan pipeline proceeds without further delay.

I urge my colleagues in the Congress to study this issue carefully—at question is the basic issue of whether we will act to alleviate shortages here at home by utilizing U.S. reserves or whether a small group of people who do not want any development of our Arctic oil and gas resources will dominate this question. Congress cannot afford to leave 25 percent of the known U.S. reserves of oil and 40 percent of the gas reserves untapped while we dance a jig to the extremists' fiddle.

We must produce Alaska's vast resources to preserve the integrity of our foreign policy and try to restore the value of our currency.

"PIPELINE PLAN PROVIDES LITTLE ECONOMIC BENEFIT, REPORT SAYS PIPELINE UNHELPFUL TO ECONOMY

"(By Terrance Wills)

"OTTAWA.—The proposed Mackenzie Valley natural gas pipeline will provide relatively little employment and revenue for Canadians while pushing up interest rates, energy prices, and the exchange rate of the Canadian dollar.

"'A northern pipeline will not make a major long-term contribution to the Canadian economy in terms of employment of personal incomes,' says a confidential intragovernment report prepared by the Economic Impact Committee of the Task Force on Northern Oil Development.

"'Even with the most favorable impact on employment, the direct and indirect pipeline labor requirements represent only 1 to 1½ per cent of the estimated Canadian labor force (10,000,000) during the years of construction,' says the report, which is dated Oct. 6, 1972.

"'Under existing tax regulations, returns to the federal Treasury will be minimal (in the order of $25 million), and substantially less than the Alaska Government expects to realize from the operation of the Alyeska (trans-Alaska) oil pipeline ($300 million),' says the main body of the report. A footnote to one of the tables appended goes even farther:

"'Income tax revenues as a result of the pipeline might therefore actually decline substantially, thereby increasing the difficulties of Government finance, and resulting in up to $19 million per year in higher Government interest costs.'

"Canadian Arctic Gas Study Ltd., a consortium of oil and gas and transportation companies, the majority U.S.-controlled, seeks to build the line to carry gas from Prudhoe Bay in Alaska and the Mackenzie Delta.

"'Most if not all of the natural gas transported by the pipeline will be marketed in the U.S.,' says the report of the committee, whose chairman is H. G. P. Taylor, director of resource programs in the Department of Finance.

"The committee is one of five set up by the Government's task force, which itself comprises four deputy ministers and the chairman of the National Energy Board.

"The report also says: 'The potential costs of pipeline operations include a continuous upward pressure of up to $188 million per year on the Canadian dollar, making it more difficult for other, more labor-intensive, exports to be sold abroad; and a potentially serious upward pressure on the level of Canadian energy prices.

"The net increase in demand for the Canadian dollar during the construction of the pipeline could be up to $600-million a year over three years, it says. 'This $600-million would represent a significant source of upward pressure on the Canadian dollar.'

"The higher the value of the Canadian dollar in relation to the U.S. dollar, the more difficult it is for Canadian manufacturers to sell their goods in the United States.

"It concludes that the pipeline would be 'a mixed blessing' for Canada.

"The construction of the pipeline—the consortium wants to build it over the period 1975–78—would generate at the greatest possible maximum, employment for 105,000 each year. 'Unless other projects requiring similar labor skills were developed at an appropriate time, construction of the pipeline could have a destabilizing effect on employment trends in the economy,' the report says.

"The Canadian portion of the pipeline is estimated to cost $4.5-billion. It is in the financing of the pipeline, and the corollary issue of control, that the report points to some of the largest difficulties.

"'Once an application for the pipeline is approved, control of its timing will largely move out of Government hands. At that point it will be difficult, if not impossible, to adjust the timing to accommodate other major capital projects which may be desirable in the same time frame,' it says.

"'The financing of the $4.5-billion Canadian portion of the pipeline, especially if it coincides with other large resource projects in Canada and abroad, will inevitably put some strain on Canadian and world financial markets. The increased demand for investment funds could push up interest rates in Canada —particularly if one of the conditions imposed by the Government on the pipeline is majority Canadian ownership.'

"Energy Minister Donald Macdonald has said repeatedly that the Government will insist on majority Canadian ownership—but the report says that this in itself will not guarantee Canadian financial control.

"'Financial control of the pipeline by Canadians would tend to ensure additional benefits to Canada. Such additional benefits would not likely be forthcoming if Canadians were simply to achieve majority ownership, since this would not guarantee financial control by Canadians.

"'The likelihood of financial control relates to the question of probable shareholder behavior, since normally only a small proportion of total shareholders control corporate policies.

"'In contrast to the possible behavior of Canadian investors in the pipeline most foreign investors (especially the American-controlled members of the pipeline consortium) will be interested in controlling the management of the pipeline.

"'It is evident, therefore, that something beyond majority ownership by Canadians would be needed to guarantee financial control of the pipeline.'

"The report recommends that the Government require that a majority of the directors be Canadian, that the executive officers be Canadian, and that the Government be able to appoint a director who would also be a member of the executive committee.

"The report estimates that from $250-million to $750-million could be raised in Canadian equity financing for the line. The portion of the cost to be raised in equity capital would be about $1-billion, leaving $3.5-billion to be raised in debt financing.

"The Canadian content of pipeline inputs is estimated to lie within a range of from $1.8-billion to $2.9-billion.

"The extent of Canadian financing and of Canadian-made materials in the pipeline will, along with the timing in raising the capital, be the important factors governing the behavior of the exchange rate of the Canadian dollar.

"That is, the more money raised in Canada and the less spent in Canada on materials for the pipeline, the less the upward pressure on the Canadian dollar. Conversely, the more money raised in the United States and spent in Canada on materials, the greater the upward pressure on the Canadian dollar in terms of the U.S. dollar. And too, the greater the inflationary pressure within Canada.

"There will at least be localized inflationary pressures, as the economy attempts to produce the $3.4-billion to $5.3-billion in goods and services that is estimated to be the total Canadian income directly and indirectly related to the construction of the line.

"'The rate of inflation would be made even worse if an attempt were made to absorb any increased foreign demand for the Canadian dollar by means of an expanded domestic money supply,' the report says.

"'In the absence of such offsetting Government intervention, any increase in demand for the Canadian dollar would tend to push up its value—resulting in higher imports and lower exports.

"'The ensuing net shift in the balance of trade could be as much as $1.6-billion over three years.

"'In addition to these difficulties stemming from a higher value of the Canadian dollar, the problems of Canadian exporters would be compounded by any further increase in the rate of domestic inflation.'

"The report urges changes in legislation to gain more revenues from the natural gas and its transportation for the public Treasury. (Mr. Macdonald has said he supports gaining increased revenues from resources.)

"There will be no income tax revenues from the line for its first 10 years of operation through tax deferral provisions, the report says, and adds: 'TransCanada Pipelines Ltd., the largest gas pipeline in Canada, has not paid any income tax since it began operations in 1958.'

"The report says that increasing revenues for the federal Treasury by higher royalties on gas would apply only to the Mackenzie Delta gas and not to the Prudhoe Bay gas that the line would carry.

"It recommends a throughput levy to tax 'the legitimate source of revenue' provided by the transportation of the Alaskan gas. A throughput tax of 10 cents per thousand cubic feet on a throughput of 1.2 trillion cubic feet per year would yield revenues of $125-million and increase costs to the U.S. consumers by 12 per cent.

"'What is clear is that for Canada to accept anything less than the maximum possible return would be to subsidize the U.S. user at the expense of the Canadian taxpayers,' the report says."

"EXHIBIT 1—A MATTER FOR THE HOUSE

"A confidential report prepared by an internal Government committee suggests that the proposed Mackenzie Valley natural gas pipeline would produce few benefits for Canada and would damage the country in a number of important ways.

"The report is dated October 6, 1972. It was prepared by the Economic Impact Committee of the Task Force on Northern Oil Development. The task force is made up of four deputy ministers and the chairman of the National Energy Board: and the economic committee is headed by H. G. P. Taylor, director of resource programs in the Department of Finance. The committee report was released unofficially at the weekend. It is, in other words, one of those papers which the Government, under its secrecy guidelines, would treat as not for public consumption.

"Yet it is a report in which the public interest is deeply concerned.

"The report finds that the pipeline would provide, either directly or indirectly, relatively few jobs for Canadians ('only 1 to 1½ per cent of the estimated Canadian labor force'). Because these jobs would be temporary, lasting about three years, they 'could have a destabilizing effect on unemployment trends in the economy'.

"Tax returns to the federal Treasury would be minimal (TransCanada Pipelines Ltd., to give a precedent, has not paid any income tax since it began operations in 1958'). The pipeline might even result in declining tax revenues, 'resulting in up to $10-million per year in higher Government interest costs'.

"'Most if not all of the natural gas transported by the pipeline will be marketed in the United States,' says the committee. This would not only give to the United States a limited Canadian resource that is likely soon to be in short supply but, by introducing U.S. competition, elevate the cost of Canadian energy resources about what they need be.

"The capital costs of the project would be huge and probably beyond the capacity of Canadian capital markets. Getting the money, both at home and abroad, could have several bad effects. It would increase inflation. It would put upward pressure on the value of the Canadian dollar, cutting Canadian exports

of more job-intensive goods. It would play hob with the Canadian balance of payments.

"We would be cutting our power to export the goods that create jobs and which we want to export, in order to make it possible to increase our exports of something—natural gas—which it may not be prudent to export.

"Shortly before the last federal election Dr. J. Tuzo Wilson, principal of Erindale College of the University of Toronto and a world-famous geophysicist, talked about that prudence to a federal seminar on scientific activities in Northern Canada. Dr. Wilson, quoting a barrage of experts, indicated that Canada itself was going to need all its proven and unproved petroleum resources.

"'Surely,' he said, 'a cautious individual would be concerned to husband his resources lest he soon be left without . . . The only conclusion I can draw from this is that we should sell nothing abroad, but proceed very slowly and cautiously to develop supplies to meet our own needs. This will give us time to do the research required (to find in usable form the other sources of energy that in the lifetimes of some now living will be absolutely imperative).'

"The election threw Dr. Wilson's statements into obscurity, but we suggested at the time that they should be studied seriously after the election. They should be studied now, in conjunction with this secret report.

"Prime Minister Pierre Trudeau told the Commons yesterday that the report was an early draft; that is, not worth considering. Energy Minister Donald Macdonald said it was 'negated in committee discussions'. He told Opposition Leader Robert Stanfield the decision on a pipeline would be made after public hearings by the National Energy Board.

"This is not good enough. If the findings of the committee have been negated, then the public is entitled to know by whom and with what facts; and the NEB is not a suitable instrument for the examination. It cannot assess how the pipeline would relate to employment, inflation, a dollar forced upwards and making our exports uncompetitive, our balance of payments, Government revenues.

"Mr. Stanfield asked that the whole question, with all pertinent reports, be referred to a committee of the House. The New Democrats made similar requests. Mr. Macdonald's suggestion, that to take the matter out of the hands of the NEB would be unlawful, was the sort of arrogant nonsense which we had hoped the Government had put behind it.

"A pipeline would touch on too many facets of national life for NEB competence. Examination of the projects, and decisions about it, belong to the Government, Parliament and people."

Mr. YOUNG. Mr. Chairman, I am sure I am not going to change this gentleman's mind and he is not going to change my mind, so I think we ought to get on with the show.

Mr. MELCHER. The gentleman from California.

Mr. BRANDBORG. Mr. Young, can I offer one clarification, that the citations of those specific comments by representatives of the Canadian Government and others were contained in the testimony of our own counsel, Mr. John Dienell, DDF. He listed specifically those comments of Canadian officials, which seemed to favor consideration of the Canadian alternatives.

Nothing that I have said, Mr. Young, did I mean to detract from the many, many gentlemen who served the oil industry in this city. My only——

Mr. MELCHER. I must interrupt. I recognized the gentleman from California. I would admonish Mr. Brandborg that we must follow that procedure and must respond to questions from the gentleman from California.

Mr. CLAUSEN. Because of the fact we have other witnesses and time is late, Mr. Chairman, I only have a couple of questions. But I would like to have an opportunity to carefully scrutinize the testimony of these important witnesses and ask consent to send them some questions and they respond.

Mr. MELCHER. Without objection, the request of the gentleman from California to ask questions of the witnesses and have their answers made a part of the record at this point will be allowed.

Hearing no objection, so ordered.

[Questions submitted for written response, follow:]

COMMITTEE ON INTERIOR AND INSULAR AFFAIRS,
U.S. HOUSE OF REPRESENTATIVES,
Washington, D.C., June 15, 1973.

MR. STEWART BRANDBORG,
Washington, D.C.

DEAR MR. BRANDBORG: When you testified on June 7 before the Public Lands Subcommittee of the House Committee on Interior and Insular Affairs, you agreed to answer additional questions for me for the hearing record.

Attached are eight additional questions for you. I would appreciate your response by June 25.

Sincerely,

DON H. CLAUSEN,
Member of Congress.

Attachment.

1. Mr. Brandborg, in your statement you said: "One of the principal advantages of a trans-Canada delivery system to both Canada and the United States, of course, is that it would tap Canadian as well as Alaskan oil fields, ..."

At this time, very little oil has been discovered in the Canadian arctic. Gas, yes, but oil only in limited amounts. In view of this, why should a longer, more expensive, and more time consuming oil line be built through Canada to move only Alaskan oil to United States markets? I would agree that if additional oil is found in Canada a second line may be necessary, but I cannot see the advantage, particularly from a national defense and national security standpoint, why U.S. Alaskan crude should be delivered to us through a foreign country and through a line controlled by a foreign nation. I do not question our past friendly relations with our good neighbor to the north, but I would still feel more secure if the delivery of that oil was not in the control of a foreign country. I would appreciate your response.

2. You indicate in several places that existing pipelines are in place from Edmonton that would deliver oil to either the Pacific Coast or the Midwest. My information indicates these lines are now flowing at or near capacity and could not conceivably carry the capacity of the contemplated forty-eight inch line. Therefore, doubling or looping existing lines from Edmonton south would be necessary. I would appreciate your comments on this, and also your comments regarding the time required to complete the entire delivery system to U.S. markets.

3. You state you would have no objection if Congress enacted legislation giving the Secretary of the Interior temporary authority to grant a right-of-way wider than the fifty feet permitted by Section 28 except for delivery of North Slope oil. If I understand you correctly, you have no objection to issuance of wider rights-of-way under Section 28 for the lower forty-eight states and even possibly at other places in Alaska, but you do object to any authority for widening rights-of-way for the delivery of North Slope Alaskan oil.

I think your position is illogical and inconsistent for you are saying a wider right-of-way is permissible in the lower United States and in Alaska except for Noth Slope oil. If you are not saying this, then I fail to grasp the meaning of your statement. Would you please explain the reason for your approval of a wider right-of-way in the lower forty-eight states and your disapproval of the same condition for North Slope oil?

4. Am I correct in assuming that the Wilderness Society will accept nothing less than a nine or six month study of all alternatives, including the Canadian line, as a resolution to the present TAP proposals? Also, what specifically would be the position of the Society if the study recommended construction of the Alaskan rather than the Canadian line? Would your organization still oppose the TAPs project and seek additional court review?

5. If you have any specific factual information regarding the environmental advantages of the Canadian line over that in Alaska, please furnish it to the

Committee. I am fully aware of your personal belief and opinion, but I want to distinguish opinion from fact.

6. Do you personally have any factual knowledge as to the position of the Canadian Government regarding a Canadian crude oil line as distinguished from a natural gas line? I am aware of the newspaper accounts and of certain statements made by Canadian officials, but so far I have found these extremely vague as to actual construction timing, degree of control required by Canada, as well as possible delay due to environmental issues and native claim settlements. Would you furnish any additional factual information you may have on each of these questions, as distinguished from personal opinion?

7. Why would the construction of a longer Canadian line be more acceptable to Canadian environmentalists than the shorter Alaskan line is to you and to our environmentalists? I hope we are not trying to export our problems to our neighbors. What factual evidence can you furnish regarding, especially, the principal Canadian environmental groups?

8. You made the statement, and I quote, "There is oil for Canada coming from Maine, from Western Alberta through the United States, through Eastern Canada."

This may be a minor point, but it is my understanding that Western Canada crude supplies Western Canada and the United States but it seldom, if ever, goes east of the Ottawa Valley line into Eastern Canada. Eastern Canada is supplied primarily by imported crude. If you have information that any substantial amount of Western Canada crude goes east of the Ottawa Valley line into eastern Canada, please furnish this Committee the quantities that are moved into that area from Western Canada.

(Ed. note.—A response to Mr. Clausen's letter with answers to his questions was never received by the Committee when these hearings were printed.)

Mr. Brandborg, the principal consideration and the factors involved are economic and environmental, as far as we are basically concerned. but there is another factor that I think is of true significance. That, of course, is the political question not only domestically but the political question in Canada, as well as the changing political situation in the world, as it relates to the entire energy question, the supply of crude oil, and so forth.

The reason I make that point is that reference has been made to the Canadian alternative and the fact it is under consideration.

Now, I believe in many ways, whatever conclusion we reach at this point, dealing with the personalities or the people that are in charge of the Canadian Government, they may have one point of view and some expressed the fact there was no interest and the chairman said there may not be any interest; but what I am trying to convey is there is an ebb and flow in the political situation that probably concerns me as much as anything else, just as much as the economic and environmental questions which have to be taken into account.

It should be one or the other, and I think we need to take into consideration both. I always tried to take that point of view.

But one thing I think has been expressed in the way of concern by a number of people is if they do take the trans-Canadian route, and there is a major commitment there, there is no—I mean toward that end. and I am of the view it probably will come some day—I think it has been expressed here, it is in all likelihood both of them will be built.

This is what a lot of people are expressing. But I think the thing I would like to have you respond to at this point is how can there be an absolute assurance as to what the political decisions of Canada will be in the future if they become committed entirely to

that particular right-of-way if, in fact, the need for Alaska Slope oil proves itself to be a specific need as part of our total inventory of crude oil, and must be exported to some place?

How do you handle that kind of situation? What would be your point of view on that?

Mr. BRANDBORG. It would be my hope, Mr. Clausen, that very quickly this committee and other entities of Congress and the Government can get a full and objective appraisal of our total energy needs and all of the alternatives that we can consider.

You are keenly aware of the fact, at the earliest that we can deliver oil from the North Slope is a time of 5 or 6 years, something like that, whether it is the Alaskan route or trans-Canadian route.

We feel that we have a long history of very close relationship with the Government of Canada and the people of Canada, and we recognize the tremendous potentials of their oil and gas, and we recognize today from Chicago to the Atlantic coast there are many boundaries, gas and oil lines, which serve here to demonstrate the good cooperation between us in building international lines.

I think in our experience we come to the realization that the Canadian Government is like ours, there are many diverse political factions and——

Mr. CLAUSEN. And there always will be.

Mr. BRANDBORG [continuing]. and there always will be. There are unknowns here as to what their final decisions will be, but they share much with us. We have this long history of the finest relations between our countries and between our people, and I would hope within this broad consideration you laid down, consideration of economic and environmental factors with them, we could come up with the right answers.

I don't know how to project this in terms of 30 years from now, except through the process that you alluded to, the study of all energy resources and all of our alternatives. I think this is very basic.

Mr. CLAUSEN. Let me interject at this point. I think what we have to do is attempt to reckon with the realities, not only of this situation, but what has transpired in other sections of the world. We had a history of close working relationship with the countries of the Mideast, but I think we also have to recognize one of the reasons we have difficulties now is because of the changing political situation in that section of the world.

I for one, am of the opinion that this is no doubt going to intensify. It seems as though that wherever there is an interest in a resource, and that is discovered, there is an obvious interest—I mean an expanded interest—in the political situation, or should we say the advocates of both sides will tend to exploit the opinions of all sides in a given area. You have more controversy.

We have more controversy in the Middle East than we have had in quite a period of time. I think this is the kind of thing, if the history of the Middle East is anything in the way of a lesson to be learned from this, it may well be that the human animal, being what it is, if there is a resource in Canada, if there is a resource coming from the Alaska Slope, it is conceivable that the political

situation and the pressures in that area, if there is an economic factor, they would change their attitude consistent with this.

Is this a fair assumption, based upon history?

Mr. BRANDBORG. I would have confidence in the ultimate decision of the people of this country and the ultimate decisions of the people of Canada, if the people of our two nations can have available all of the facts and objective scientific information which should be brought into consideration.

The Wilderness Society has seen a great awakening in this country of public concern about the environment, of public concern about our economic problems, public concern about supplies of fuel. And more and more, Mr. Clausen, we feel that the people who ultimately must make decisions and give guidance to all of us who serve them, whether in the private sector or private citizen organizations, the executive branch or Congress, are showing a capability to make those decisions. It is this growing involvement of increasing numbers of people here and in Canada, too, that gives you great hope that we can get those data and we can reckon with the problem of world supply, that we can see what our options are and come down on the best possible solution, recognizing some answers that will be less than all we might choose for the environment or for economic purposes.

There will be some instances when we don't have the best of any one world, but we try to get the best of several. So I think that is a logical thing you lay before us.

Mr. CLAUSEN. I don't want to belabor the point, but I think whatever action we take today certainly must be able to stand the test of time and, hopefully, the recommendation could be so structured that it would not be subject to the whims of the personality or the situation, if at all possible. Because I think institutions have got to stand, no matter who the personalities might be in political office at a given time.

Mr. BRANDBORG. We certainly concur with that, and that is basically our request for independent scientifically derived information. We have felt that we had that kind of consideration through the 3½ years of this controversy.

Mr. DEANE. Mr. Chairman, may I make one added suggestion?

Mr. Clausen, obviously, Canada and the United States are already quite interdependent in terms of oil and gas and other resources. We are getting quite a lot of oil and gas from Canada. And as I mentioned earlier, we are going to need any future Canadian resource to a large extent in this country and the Canadians need us as a market.

They need us, not only as a long-term market but also in order to build pipeline facilities. They can't afford to do this by themselves; they need interdependent relationship of American-Canadian corporations, which they have in these consortiums. They need to work together with us in the face of this problem you alluded to of the Middle East.

I think this is going to become increasingly so.

Mr. CLAUSEN. Do you have any evidence of this, that they are acknowledging this?

Mr. DEANE. Yes.

Mr. CLAUSEN. They could also exploit it, couldn't they?

Mr. DEANE. Yes; as Mr. Macdonald, the Canadian Energy Minister, pointed out on television——

Mr. CLAUSEN. That is a personality, though.

Mr. DEANE. He pointed out—but he is a Cabinet minister, and the Cabinet structure is dominant in Canada, unlike us, so the Cabinet ministers speak with great authority.

He pointed out we share hostages of fortune, as he put it. There is oil for Canada coming from Maine, from western Alberta through the United States, through eastern Canada. So we have leverage, as they have leverage.

But what I am suggesting is, in the face of this common problem of the Middle East being the dominant source of oil in the world, Canada and the United States are going to have to work more closely together than they have, and they are going to have to have a sharing of resources and, hopefully, a sharing of the profits, and so on.

I think the logic is very hopeful in terms of increasing cooperation rather than the reverse. I think the meeting this last weekend—and I hope the committee will have benefit of reports from other Members of Congress who were at those meetings—I think that kind of exchange is very hopeful because the Canadians, I think, are increasingly coming to realize we are all in the same boat, are on the same continent and have to do these things with this in view.

Mr. CLAUSEN. I happen to concur with most of what you said. I believe the time has come for all of us to become more sophisticated and recognize economic coordination and cooperation towards self-sufficiency here in the Western Hemisphere, and certainly that has been my goal for many years. I like to look at these things in broader perspective. But, by the same time, that is the idea, we have to deal with the realities of life and the pressures involved here.

Thank you very much for your testimony.

Mr. MELCHER. Thank you very much, Stewart, and Mr. Deane, for your testimony and your response to questions.

Mr. BRANDBORG. Thank you.

Mr. DEANE. Thank you, sir. I appreciate the opportunity.

Mr. MELCHER. The next witness is Mr. Mike Frome, conservation editor, Field and Stream.

STATEMENT OF MICHAEL FROME, CONSERVATION EDITOR, FIELD AND STREAM

Mr. FROME. Thank you very much.

I have submitted my statement and will be pleased to discuss it, as you wish.

I would also like to express a word of appreciation to the subcommittee and to the chairman in particular, for the open hearings that you have conducted. The 11 days certainly speak very well.

Mr. MELCHER. Without objection, Mr. Frome's statement will be made a part of the record at this point.

Hearing no objection, so ordered.

[The complete prepared statement of Mr. Frome, above-referred to, follows:]

STATEMENT OF MICHAEL FROME
CONSERVATION EDITOR, *Field & Stream*

It strikes me the first question to resolve in approaching the Alaskan oil resource is how serious the need to exploit it really might be. Secretary of Agriculture Earl Butz has declared that "The first people to have their power shut off should be those who blocked the Alaska pipeline." But I feel no sense of guilt in urging delay and further review. I noted with keen interest an article on the first page of yesterday's paper reporting legal action by the Department of Justice to force nine major oil companies to document claims of a severe shortage of proven reserves of natural gas. We need such documentation, facts, research and choice of alternatives—in dealing with all facets of the energy crisis—before charting a course of history and making fundamental commitments that may prove irreversible.

The core of the issue is growth, unrestricted and uncontrolled. Growth demands energy in ever-spiralling volumes. Growth has been the life-style of our nation throughout its entire existence. We have acted as though land, air, water, forests, coal, petroleum and metals were limitless. Now at last we have learned to recognize the finite capacities, not only for our country but for the world—the limits of the planet to produce food, fibre, and minerals and to absorb pollution produced by a technological supercivilization. "A strategy of continued growth in consumptive use will be a strategy of suicide," as Dr. Earl Cook, dean of geosciences at Texas A&M University, declared last November.

In this century, the world has devoured and lost forever more natural resources than in all previous history. The United States has led the way with our superstandards of affluence and waste But what can we expect to leave for the next century to use and enjoy?

The known sources have been tapped. Now the explorers are searching for new sources, but their periods of productivity will be limited, too. Regardless of how long they last, one must wonder whether they should be tapped at all, whether we might be losing something far greater for the centuries than gaining for some brief instant of our own time. This seemed to me the overpowering lesson of the Santa Barbara oil spill of 1969. Union Oil Company defended its defiling of a uniquely beautiful area on grounds of "meeting the energy needs of the nation," but I cannot believe that the extraction of a limited amount of petroleum transcends the natural and environmental values destroyed in the process.

The same issue prevails on the North Slope of Alaska, with dangers not only to the last great wilderness on the continent, but to the Pacific fisheries and to the recreational resources of Puget Sound.

"There are in the United States today about 250 operating refineries," Frank N. Ikard, president of the American Petroleum Institute, declared recently. "That's not nearly enough, and in refinery capacity we're rapidly falling behind our requirements." I have no quarrel with Mr. Ikard on this statement, but refinery capacity is only one contemporary "requirement" and perhaps not the most important when weighed against protection of water quality, health, wildlife, and recreational opportunities.

I am happy that both sides of the coin—development of our resources and protection of the environment—are being increasingly recognized in Alaska. As the *Alaska Empire*, of Juneau, editorialized on May 8:

"Certainly we have an energy crisis, a timber shortage, and attempts by many to determine future land use by preservation, but perhaps these complex problems have solutions other than the immediate degradation of the environment.

"If there is a lesson in the Watergate scandals, it is the public's blind acceptance, through apathy, of biased facts and events fed by self-interest motivated politicians and businessmen.

"Are the pipeline and 80-million acre withdrawals such issues? Is the pipeline really safe?

"We wonder.

"Whether or not our state and national leaders have the political inclination or fortitude to debate the future of Alaska is questionable. Obviously the Sierra Club has forced this confrontation, perhaps for the best.

"As we view the mistakes of the 'lower 48' and the slow encroachment of the bulldozer on virgin Alaskan land, we question whether the state is engulfed in well designed development hysteria, or sincerely attempting to perpetuate Alaska for future generations."

It's not only Alaska that concerns me, but all the public lands of the West that come under the purview of this Committee. Next week I will be on the ground in Montana and Wyoming. Must we devour the surfaces of valuable, productive cattle country of those states just because coal lies beneath them? I cast my vote for the irreplaceable environmental, cultural, scenic, social and historical values of the great western plains, all of which stand to be scarred beyond recognition, or lost altogether in the energy onslaught that lies ahead.

"Of initial concern," as the Montana Department of Fish and Game has advised, "is the nationally famous fish and wildlife resource. But even more important is the land, air, and water on which this resource depends. This high quality aquatic and terrestial habitat could disappear forever from Montana's landscape, leaving fish and wildlife as unfortunate victims and Montanans as the 'biggest losers of all.'" This must not happen. When Montana or Alaska—or any state—is critically affected, we are all losers, even including the big cities for which the power is intended.

In a sense I am glad the Alaskan oil debate has brought the right-of-way issue into focus, even though I object to pending legislation which would give the Secretary of the Interior a blank check to issue permits for any kind of right-of-way across federal lands, whether for pipelines, transmission lines, canals, ditches, roads, trails, railroads and cowpaths. When Congress decided in 1920 to limit right-of-way access on public lands it did so only after lengthy, careful deliberation. Right-of-way restrictions were written into law because of Congress' belief that any other action would merely duplicate profligate disposal of land in the West to railroads during the 19th Century.

Yes, we need a right-of-way review in order to determine the extent of violations which have been tolerated and sanctioned by the executive branch. It strikes me further, however, that Congress must exercise the basic authority and responsibility itself, not to extend such broad discretion to the Secretary of the Interior, whoever he may be.

Precisely the same point applies to the pipeline. At a time when prominent scientists, economists, environmentalists and ordinary citizens in all parts of the country have raised serious questions about the Alaska route, Congress should mandate a fact-finding survey of its own into all aspects of this project. Will the insistence upon the giant tanker route prove a shortcut to Tokyo and a bonanza for the oil companies? Could the Canadian alternative prove less damaging and place the oil where it is most needed? What exactly will be the impact on wildlife and fisheries, both sport and commercial, as well as the ecosystem in general, and will the material benefits truly outweigh the losses to our society now and in the future? These are questions that can be resolved within a year's time, in compliance with provisions of the National Environmental Policy Act. If we cannot afford it, then the nation is in terrible trouble indeed.

But I feel certain that Congress will reserve to itself, in behalf of the people, the right and responsibility to achieve an informed decision after getting all the facts. Let these facts and your judgment stand the valid test of history.

Mr. MELCHER. You may proceed, Mr. Frome.

Mr. FROME. I am just going to read the opening and closing.

It strikes me the first question to resolve in approaching the Alaskan oil resource is how serious the need to exploit it really might be. Secretary of Agriculture Earl Butz has declared that "The first people to have their power shut off should be those who blocked the Alaska pipeline." But I feel no sense of guilt in urging delay and further review.

I noted with keen interest an article on the first page of yesterday's paper reporting legal action by the Department of Justice to force nine major oil companies to document claims of a severe shortage of proven reserves of natural gas. We need such documentation, facts, research and choice of alternatives—in dealing with all facets of the so-called energy crisis—before charting a course of history and making fundamental commitments that may prove irreversible.

The core of the issue is growth, unrestricted and uncontrolled.

Growth demands energy in ever-spiraling volumes. Growth has been the lifestyle of our Nation throughout its entire existence. We have acted as though land, air, water, forests, coal, petroleum and metals were limitless. Now, at last, we have learned to recognize the finite capacities, not only for our country but for the world—the limits of the planet to produce food, fibre, and minerals and to absorb pollution produced by a technological supercivilization. "A strategy of continued growth in consumptive use will be a strategy of suicide," as Dr. Earl Cook, Dean of Geosciences at Texas A. & M. University, declared last November.

I really wish we were holding a hearing on the potential and conservation of our vanishing resources, rather than means of exploiting them at an accelerated rate.

It's not only Alaska that concerns me, but all the public lands of the West that come under the purview of this committee. Next week I will be on the ground in Montana and Wyoming. Must we devour the surfaces of valuable, productive cattle country of those States just because coal lies beneath them? I cast my vote for the irreplaceable environmental, cultural, scenic, social, and historical values of the great Western Plains, all of which stand to be scarred beyond recognition, or lost altogether in the energy onslaught that lies ahead.

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Will the insistence upon the giant tanker route prove a shortcut to Tokyo and a bonanza for the oil companies? Could the Canadian alternative prove less damaging and place the oil where it is most needed? What, exactly, will be the impact on wildlife and fisheries, both sport and commercial, as well as the ecosystem in general, and will the material benefits truly outweigh the losses to our society now and in the future? These are questions that can be resolved within a year's time, in compliance with provisions of the National Environmental Policy Act. If we cannot afford it, then the Nation is in terrible trouble, indeed.

But I feel certain that Congress will reserve to itself, in behalf of the people, the right and responsibility to achieve an informed decision after getting all the facts. Let these facts and your judgment stand the valid test of history.

Thank you very much.

Mr. MELCHER. Thank you, Mr. Frome, for some excellent testimony.

I have your statement in front of me this morning, of course, as other members have, and have taken the liberty of reading it prior to your appearance before us at the witness table.

I only have one question, and it has to do with what we have been talking about principally this morning, whether or not Canada really has an interest at this particular time.

Mr. FROME. Canada?

Mr. MELCHER. Yes, in building a trans-Canadian pipeline. And if we find that they do not have an interest at this particular time, for any number of reasons, what would be your recommendation then to the subcommittee?

Mr. FROME. I could only speak for myself and not on behalf of Canada, but I am just as concerned about the Canadian development, or the South American development, or the environment of Guam, or any part of the world, as I am of the environment of Alaska, or the State of Virginia, where I live.

I feel we live in one world. It is an ever-shrinking world. And what affects one corner of it affects the rest of it. So I feel the determination about Canada should be made on the basis of the environmental impact, as well as the political climate in Canada.

I think Mr. Clausen introduced some very valid points when he talked about the ebb and flow of politics. I feel the environmental concerns are only beginning to come into politics the world over. But it is very interesting to read in yesterday's paper, wherein the people of Vienna voted against tearing down trees in their great park, Vienna, Austria. They practically are causing a disruption of the government: the whole government of Austria may fall over the enlightened position of the plebiscite, the people of Vienna. We find this all over the world.

In our own country up to this point the emphasis has been on growth to the unlimited frontier. Now, we know the frontier is ended. We have to conserve rather than exploit and develop. We have to express a concern for the rest of the world and certainly that should be in dealing with cousins or brothers across the border of Canada.

To me, the issue is not whether we are going to go one way or the other, but the issue is, how desperately do we need the oils, what

are the gains, what are the losses for us all? And when we answer all of these questions, then I think we will come to a sound approach as to when and how and where to bring out the oil.

Mr. MELCHER. Thank you, Mr. Frome.

The gentleman from Guam.

Mr. WON PAT. No questions, Mr. Chairman.

Mr. MELCHER. The gentleman from California.

Mr. CLAUSEN. I notice that in the second to the last paragraph, you actually ask some questions, and I am sure with your vast background and experience and exposure, I believe you would possibly have some thoughts and ideas on the very questions you asked, or you wouldn't have posed them.

I would like to use one of your questions and have you respond. Could the Canadian alternative prove less damaging and place the oil where it is most needed? I would like to have your response.

Mr. FROME. Well, I think the witnesses before me went into great length, based on studies which they have made. There appears to be strong evidence from a variety of sources that the Canadian alternative would prove less damaging and place the oil where it is most needed in the Middle West.

Mr. CLAUSEN. Again, you stated that you were concerned about the effect on the environment. and you also stated, by raising a question on the ecosystems in general.

Mr. FROME. Right.

Mr. CLAUSEN. In Canada. So your testimony here today, by the question, are you implying that you very definitely favor the Canadian alternative?

Mr. FROME. No. I wouldn't say that. I would say that we should ask some of the questions the chairman of the subcommittee asked in his excellent statement. I wouldn't say I favor the Canadian alternative. I would say I favor an exhaustive review into all factors involved, including the answers to the questions I raised. Including whether the oil is destined for Tokyo or the west coast or what-have-you?

Mr. CLAUSEN. You were here when the previous witnesses from The Wilderness Society testified?

Mr. FROME. Yes, I was.

Mr. CLAUSEN. And if my conclusions are accurate, I believe they tend to favor the Canadian route. I might ask Mr. Brandborg—is that a fact?

Mr. BRANDBORG. From all available evidence as of now, the Canadian route seems to be much preferable.

Mr. CLAUSEN. In light of that, would you agree with their point of view?

Mr. FROME. I am not qualified to agree or disagree in favor of the Canadian route. To my mind, there are more basic questions to resolve before the direction of the route.

Mr. CLAUSEN. Well, directing some questions possibly to your specific area of expertise, and I frankly admit, I haven't seen the area itself, what specific impact might there be on the fish and wildlife area, which is an area I am personally concerned about.

Mr. FROME. I am sorry Mr. Young isn't here, because I was going to refer to a trip I made with out mutual friend, former Secretary

Hickel, in Finland, in the Arctic Slope of Finland. He saw where they were planting lichen. They were growing lichen and Secretary Hickel said, "That is exactly what we need on the North Slope, where the oil companies go in and lay the pipeline, we can cover it up with new lichen," which is a very humble shrub, or plant, or herb. And the biologist, or botonist, or ecologist, with whom we were traveling, said, "But lichen is very slow growing; it take 1,000 years."

So I think the impact on the ecosystem will be serious and long-lasting and there is no question about that. I don't think that anybody would deny it, couldn't deny it.

Mr. CLAUSEN. That is a general statement. Could you be more specific in light of your expertise? What effect would it have now on the fish and wildlife?

Mr. FROME. I believe it would destroy the habitat, food supply, of the great caribou herds. It would have serious impact on the finest fisheries in North America. This is why sportsmen all over the continent are asking many, many questions. Our readers in Field and Stream are writing in all of the time, in deep concern over the destruction of fisheries and wildlife habitat of the North Slope, of the passage from Valdez down to the Puget Sound, of Puget Sound itself.

So I think what we really should get, and I believe this may have been covered by the Fish and Wildlife Service, that the impact would be serious and devastating and long-lasting on fish, wildlife, and ecosystem.

Mr. CLAUSEN. Let's assume for the moment, as those that are suggesting, that this oil reserve that is in that location will ultimately be required. Let's assume that. What alternatives, shall we say, for the Canadian alternative. on what alternative would there not be any political restraint as far as the United States is concerned? What alternatives do you see might be used to get that supply of crude oil out of the area?

Mr. FROME. I think in that case we have to have the most stringent possible controls over the extraction of the oil. I feel that we should determine, if we do determine the oil is needed, over what length or priod of time. What length or period of time should it be taken out. Not for the good of the oil companies, but the good of the Nation. We are running out of oil all over the world. We are wasting petroleum at a rapid rate.

The first thing we should probably do is go to the auto manufacturers and say, "Why is the gasoline engine so inefficient?"

I don't know. Mr. Clausen, what kind of consumption you get with your car, but I get about 14 miles to the gallon. And it has been 14 miles to the gallon forever. We have got to conserve our vanishing supply of petroleum and we shouldn't rush into an orgy of exploitation of the Alaskan resource. If we decide that we do have to have it, we should have a time frame to bring it out slowly, conservatively, and with all possible respect for the environment.

This is another element of concern. I think that the Bureau of Land Management, which is charged with that responsibility of supervising the oil exploration, must be operated as a highly competent, professional agency. Many of us in the conservation fields are deeply concerned about the intrusion of political pressures into the

management of the BLM Agency today. I would urge this Subcommittee in Charge of Public Lands to follow it up.

The Senate Interior Committee had the Assistant Secretary for the Interior, Jack O. Horton, before it in his confirmation hearing. He gave a pledge the new Director would be a career man. We now have reason to believe that it is not going to be a career man.

I am endeavoring to do my best to answer your question as to the protection and controls over extraction of the oil when it becomes necessary.

Mr. CLAUSEN. Of course, this gets into a very broad question and we are dealing with a terribly narrow question, I think, before this committee. It is all related: I think the gentleman from Ohio alluded to this, the question of the environmental factors involved versus the right-of-way question. It is going to take some real doing.

I won't take any more time. I would like to ask some more questions in writing and have them submit responses.

Mr. FROME. I would be pleased to do so, to go into the right-of-way in terms of the environment as well.

Mr. MELCHER. Without objection, the questions of the gentleman from California and the answers of Mr. Frome will be made a part of the record at this point.

Hearing no objection, so ordered.

[Questions submitted for written response, follow:]

COMMITTEE ON INTERIOR AND INSULAR AFFAIRS,
U.S. HOUSE OF REPRESENTATIVES,
Washington, D.C. June 15, 1973.

Mr. MIKE FROME,
Conservation Editor,
Field and Stream
New York, N.Y.

DEAR MR. FROME: When you testified on June 7 before the Public Lands Subcommittee of the House Committee on Interior and Insular Affairs, you agreed to answer additional questions for me for the hearing record.

Attached are three additional questions for you. I would appreciate your response by June 25.

Sincerely,

DON H. CLAUSEN,
Member of Congress.

Attachment.

1. If you have any specific factual information regarding the environmental advantages of the Canadian line over that in Alaska, please furnish it to the Committee. I am fully aware of your personal belief and opinion, but I want to distinguish opinion from fact.

2. Do you personally have any factual knowledge as to the position of the Canadian Government regarding a Canadian crude oil line as distinguished from a natural gas line? I am aware of the newspaper accounts and of certain statements made by Canadian officials, but so far I have found these extremely vague as to actual construction timing, degree of control required by Canada, as well as possible delay due to environmental issues and native claim settlements. Would you furnish any additional factual information you may have on each of these questions, as distinguished from personal opinion?

3. Why would the construction of a longer Canadian line be more acceptable to Canadian environmentalists than the shorter Alaskan line is to you and to our environmentalists? I hope we are not trying to export our problems to our neighbors. What factual evidence can you furnish regarding, especially, the principal Canadian environmental groups?

[EDITOR'S NOTE.—A response to Mr. Clausen's letter with answers to his questions was never received by the Committee when these hearings were printed.]

Mr. MELCHER. The gentleman from Ohio.

Mr. REGULA. Thank you, Mr. Chairman.

Mr. Frome, as I read your statement, it is really a philosophical discussion of the utilization of earth's resources. This leads me to this question, and that is, how do you suggest that we change the life style of people since to accomplish the desirable result that you outline, you are talking about that subject?

Mr. FROME. You are absolutely right. I feel here in the United States we must alter the life style that makes us enemies of ourselves.

Mr. REGULA. How do we do that?

Mr. FROME. I think young people all over America are doing it all the time. I noted with great interest that the Secretary of the Interior had recently announced a reorganization of his Department, with one organization in charge of conservation of energy.

I feel the Government of the United States has an opportunity to show the way through the conservation of energy. Every member of Congress has that opportunity to respond to the many young people, and old people as well. As one of the modestly "over 40" set, I refuse to be left behind by the young.

Mr. CLAUSEN. Would the gentleman yield?

Mr. REGULA. Yes.

Mr. CLAUSEN. I would be interested in what kind of automobile you drive.

Mr. FROME. I have one car. My wife and I have one car. We take the bus. I drive a 6-year-old Buick, 6- or 7-year-old Buick. I am not getting another one until this one runs out.

Mr. CLAUSEN. That is in the category of a polluting automobile.

Mr. FROME. You are absolutely right.

Mr. CLAUSEN. It also consumes a lot of fuel.

Mr. FROME. You are absolutely right.

Mr. CLAUSEN. I am a great believer in all of us practicing what you preach. This is an indication of what you are saying, that you haven't changed your life style but yet you are advocating it.

Mr. FROME. I changed my life style in the submission of my testimony. Because in the world of journalism, everything is double-spaced. But my statement is single-spaced and page 2 and 3 are on the same sheet. So I have endeavored in this small way to help save.

Mr. CLAUSEN. Are you still smoking?

Mr. FROME. No. I gave up smoking; thank you very much.

Mr. CLAUSEN. The reason I ask that—and I don't mean to take the time of the committee—I was attending a gathering with a group of people and they said, "Mr. Congressman, you have to do something about pollution."

I happened to notice the lady who asked the question. She had just lit a cigarette, and I said, "I think you can start right now by putting out your cigarette."

Mr. FROME. I don't want to be holier than thou, but I feel the climate in America is ready to change the life style, to put the emphasis on the quality of life rather than what we misinterpret as our superstandard of living.

Mr. CLAUSEN. If I may interrupt, I said at the outset, if you recall, at the hearing, in addition to the environmental and economic

TAB A (Brief)

IN THE

United States District Court

FOR THE DISTRICT OF COLUMBIA

Civil Action No. 928-70

THE WILDERNESS SOCIETY, ENVIRONMENTAL DEFENSE FUND, INC., AND FRIENDS OF THE EARTH, ET AL.,
Plaintiffs,

v.

ROGERS C. B. MORTON,
SECRETARY OF THE INTERIOR, ET AL.,
Defendants.

PLAINTIFFS' BRIEF ON NATIONAL ENVIRONMENTAL POLICY ACT ISSUES

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July 17, 1972

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XI

SYSTEM OF REFERENCE

Plaintiffs have employed the following system of reference for the numerous documents in the record.

1. *Administrative Record* (Ad. Rec.) consists of documents, collected by Interior Department lawyers. The classification system adopted by the Department is employed.

2. *Final Impact Statement* (FIS) refers to the six-volume statement on environmental impact, entitled *Final Impact Statement Proposed Trans-Alaska Pipeline*, and released on March 20, 1972. Specific volume and page references are included.

3. *Economic and Security Analysis* (ESA) refers to the three-volume statement on nonenvironmental aspects of the proposed project and its alternatives, entitled *An Analysis of the Economic and Security Aspects of the Trans-Alaska Pipeline*, and also released March 20, 1972. Specific volume and page references are included.

4. *Plaintiffs' Documents* (P. Docs.) refers to the three-volume attachment to this brief, consisting of various memoranda and documents of the Department and other agencies; records of press conferences; correspondence between counsel for plaintiffs and representatives of the Department; and other relevant items.

5. *Plaintiffs Appendices* (P. App.) refers to the appendix to this brief, which consists of five parts. Pertinent statutes and administrative regulations appear at *Tab A*. A collection of indeterminancies acknowledged in the March 20 Statement appears at *Tab B*. *Tabs C and D* contain comments on the preliminary Impact Statement of January 1971. Illustrations of editing changes made on that preliminary Statement appear at *Tab E*.

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6. *Depositions* (Dep.) were taken by plaintiffs of various Interior Department officials in connection with

their roles in the decisionmaking process. Exhibits (Ex.) were introduced during the depositions. The deponents, in chronological order, were:

a. Jack O. Horton (May 18, 1972), who held positions in the Department ranging from Staff Assistant to Deputy Undersecretary. Mr. Horton played a key role in the decisionmaking process. Among other things, he was primarily responsible for the editing of the January 1971 preliminary Impact Statement, was chairman of the Task Force established to evaluate the proposal, and prepared a memorandum on the Canadian alternative after release of the March 20 Statement in late March 1972.

b. David A. Brew (May 24, 1972), is Deputy Assistant Chief Geologist in the Office of Mineral Resources of the Geological Survey of the Interior Department. He was primarily responsible for preparation of the March 20 Statement.

c. Frederick Sanger (May 31, 1972), is Chairman of the Technical Advisory Board of the Interior Department. The TAB conducted a review of Alyeska's Project Description. He also prepared a memorandum regarding certain environmental factors as to the Canadian alternative after release of the March 20 Statement.

d. William A. Vogely (June 6, 1972), is Director of the Office of Economic Analysis. He was primarily responsible for preparation of the Economic and Security analysis. He was the superior of Richard Nehring, who prepared a study of economic savings from constructing oil and gas pipelines within a common corridor through Canada. Dr. Vogely also prepared the first draft of an option paper which Secretary Morton used in reaching his decision.

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e. Jared Carter (June 8, 1972), is Deputy Under-Secretary of the Interior Department. He was appointed on April 20, 1972. Mr. Carter was responsible for supervising the review of comments on the Impact Statement and assisted in preparation of the press release announcing the Secretary's decision to approve the permit applications.

f. Richard Nehring (June 16, 1972), was an economic analyst in the Office of Economic Analysis. He assisted in preparation of various portions of the Final Impact Statement and the Economic and Security Analysis. Mr. Nehring also prepared the study of economic savings from use of a common corridor in Canada for oil and gas pipelines.

g. Rogers C. B. Morton (June 24, 1972), is Secretary of the Interior.

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Defendants.

PLAINTIFFS' BRIEF ON NATIONAL ENVIRONMENTAL POLICY ACT ISSUES

ISSUES PRESENTED

---

[1] This case involves the question whether defendant Secretary of the Interior has complied with the requirements of the National Environmental Policy Act, 42 U.S.C. § 4321, *et seq.*, in the decisionmaking process regarding applications for use of the public lands in connection with the proposed Trans-Alaska Pipeline. The specific issues presented are:

I. Whether the Secretary has complied with the Act's requirement that he consider the alternative of oil and gas pipelines in a common corridor through Canada, when he: (a) did not systematically analyze the apparent advantages of this alternative; and (b) devoted nearly all his efforts to the study of the proposal of the applicant oil companies.

II. Whether the Secretary has complied with the Act's requirement that he consider the alternative of deferring decision, when he did not evaluate the benefits of deferral in reducing environmental degradation.

III. Whether his "Final Impact Statement" was a proper final statement when an adequate draft statement never was prepared.

IV. Whether the Secretary's decision was arbitrary and capricious because it was based upon speculation regarding factors about which concrete information could have been obtained.

These issues are discussed at the corresponding Points below.

[2] STATEMENT OF FACTS

The discussion of pertinent facts is divided into two parts: (A) A description of the proposed project, taken entirely from the Interior Department's own pronouncements; and (B) a chronological summary of the decision-making process culminating in the Secretary's decision of May 11, 1972, to grant permits for the proposed Trans-Alaska Pipeline System. Supplemental facts particularly relevant to specific legal arguments will appear in the sections of the brief that develop those legal arguments.

3

A. The Proposed Project

The proposed Trans-Alaska pipeline would be the "most complex," "most costly," and "most ecologically sensitive" project ever undertaken (P. Docs. III, Tab B, p. 4). Its purpose is to transport oil from Prudhoe Bay on Alaska's North Slope to the Port of Valdez at Prince William Sound in southern Alaska. In order to construct the pipeline it will be necessary to build a road from Livengood to the North Slope to transport construction materials and personnel. Various other facilities, including air fields, pumping stations, and communication sites will also be required for construction and operation of the pipeline. From Valdez, the oil will be loaded onto tankers for marine transport to destinations on the west coast of the [3] United States and possibly elsewhere (FIS, Vol 1, pp. 1-2).

The North Slope oil fields also contain significant quantities of natural gas (FIS, Vol. 4, p. 69). Much of the gas will be produced simultaneously with the oil and, indeed, must be produced if the oil is to be produced (FIS, Vol. 1, p. 57). "It seems clear that a single gas line will be built through Canada to the United States markets" (ESA, Vol. I, p. C-22). Such a gas transportation system is an essential requirement of any oil pipeline system (FIS, Vol. 1, p. 50, 57).

1. *Terrestrial Impact of the Proposed Oil Pipeline*

The Trans-Alaska oil pipeline would cut a swath across the entire length of Alaska. On its 789-mile journey, the proposed pipeline would cross some 641 miles of federal lands (FIS, Vol. 1, p. 1); transect the four major physiographic divisions of Alaska—the Interior Plains (the Arctic Slope), Rocky Mountain System (the Brooks Range), Intermontane Plateaus, and Pacific Mountain System (Alaska and Chugach Ranges) (FIS, Vol. 2, p. 13)—and four primary river basins—those of the Sag-

avanirktok, Yukon, Copper, and Lowe Rivers—whose unpolluted waters constitute a vast wilderness primarily used for hunting, fishing, trapping, and recreation (FIS, Vol. 2, p. 76).

[4] a. *Wilderness and Recreation Areas*

"Outside the cities of Anchorage and Fairbanks, the coastal towns and their interconnecting transportation routes are great expanses of wilderness" (FIS, Vol. 2, pp. 213-214). The pipeline would "divide" "into two" the "largest wilderness area in the United States," which extends from the Arctic Ocean to the Yukon River (FIS, Vol. 1, p. 151). The bleak Arctic Slope and the Brooks Range support a kingdom of wildlife including caribou, mountain sheep, moose, muskoxen, grizzly and polar bears, wolf, coyote, wolverine, fox, lynx, marten, mink, otter, weasel, and various rodents (FIS, Vol. 2, p. 175). And the wilderness south of the Brooks Range includes many of the same species in even greater densities (FIS, Vol. 2, pp. 184-186).

The associated 361-mile road from Livengood to the North Slope will open this heretofore unblemished wilderness, resulting in increased hunting pressures that will threaten the populations of grizzly and brown bear, polar bear, and mountain sheep (FIS, Vol. 4, pp. 164-165); increased forest fires that will destroy forage for caribou and mountain sheep (FIS, Vol. 4, p. 109); and rapid deterioration of the "spectacular fishing quality" of northern streams (FIS, Vol. 4, p. 138). The route of this road "was chosen mainly to meet engineering requirements and to facilitate construction and servicing of the pipeline. . . . [P]ublic interest . . . was not a consideration in [5] planning the layout of the road. . . . Large mammal resource values would be better protected . . . if . . . animal movements, hunter access and wildlife viewing had been taken into consideration. . . ." (FIS, Vol. 4, p. 39).

The pipeline would cross the Yukon River, which dwarfs all others in Alaska with a drainage area of 330,000 square miles, one-third of which is in Canada (FIS, Vol. 2, p. 155). The chinook, chum, and coho salmon in the Yukon which migrate as far as 2,000 miles to the headwaters to spawn represent unique and irreplaceable races of their species. Other fish found in the Yukon River basin include grayling, sculpin, sucker, whitefish, trout, northern pike, burbot, and inconnu (FIS, Vol. 2, pp. 155-156).

South of the Yukon River the pipeline will intrude on some of the most popular recreational areas in Alaska, including the Copper River System, the most important salmon water in central Alaska. About 40 million sockeye salmon have been taken commercially from the Copper River since 1904 and it supports an important subsistence fishery (FIS, Vol. 2, p. 156). The Gulkana River, the tributary of the Copper, which is tightly hugged by the pipeline route, is singled out as:

> ". . . a beautiful clean stream which is accessible by road almost throughout its entire length, [and as being] the most important fishery stream in the Copper River System. Some 100,000 sockeye and
> [6] 20,000 chinook salmon and some steelhead migrate up this stream annually." (FIS, Vol. 2, p. 157)

The Gulkana flows through Summit and Paxson Lakes, both of which "offer excellent fishing. . . . Paxson Lake Campground . . . is the most heavily used recreation facility in this region. . . . [T]he campground is often over-subscribed during the summer" (FIS, Vol. 2, p. 254).

Some 234 gravel pits will be established from which will be extracted 83 million cubic yards of gravel (FIS, Vol. 1, p. 245; Vol. 4, pp. 66). Access roads and the pipeline would also become permanent features of the landscape (FIS, Vol. 4, p. 139). Aesthetic values in

all areas traversed by the pipeline would be reduced (FIS, Vol. 4, p. 139); and further development will follow on the heels of pipeline construction (FIS, Vol. 1, pp. 248-251).

b. *Wildlife*

Substantial sections of the pipeline will be elevated. These portions, together with the associated road, will present a "combined barrier effect" on migrations of large mammals, especially caribou, preventing them from reaching calving grounds and grazing ranges (FIS, Vol. 4, pp. 157-161).[1] However, "because of the limited research that [7] has been done to date on the behavior of wild animals, the significance of the disruption of behavior patterns on the well-being of wildlife cannot be fully evaluated" (FIS, Vol. 4, p. 149). Nor can a full evaluation be made of "the effects of the above-ground portions of the pipeline on movements of large mammals" (FIS, Vol. 4, pp. 531-533), the effects on large mammals of the odors and sounds from the pipeline (FIS, Vol. 4, p. 159), or the extent of destruction of lichens, which are forage for caribou, from SO_2 emissions from pumping stations (FIS, Vol. 4, pp. 117-118). "Virtually no information is available . . . on the effects of crude oil

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[1] The pipeline will transect caribou range in the Sagavanirktok, the Yukon, and the Copper River drainages (FIS, Vol. 2, p. 159, Table 12). The Sagavanirktok drainage is split down the middle by the pipeline and associated road. It is flanked by the ranges of the Porcupine herd, numbering 140,000 caribou, on the east and, on the west, by the Arctic herd which numbers 243,000 caribou. These two herds intermingle in the summer in the vicinity of the proposed pipeline route (FIS, Vol. 2, p. 176). For over 50 miles the pipeline could block their migration routes, including one pass used in spring by some 25,000 caribou (FIS, Vol. 4, pp. 158-159). In addition, certain damage to caribou will occur in the Copper River basin where 20,000 caribou of the Nelchina herd may be cut off from their calving grounds (FIS, Vol. 4, p. 158). And, south of the Brooks Range portions of the Western Arctic caribou herd as well as moose will be affected (FIS, Vol. 4, p. 157).

on large mammals as a result of direct contact or ingestion" (FIS, Vol. 4, p. 626).

The "relative toxicity of North Slope crude oil to birds is not known" (FIS, Vol. 4, p. 229). But it is known [8] that "refined petroleum materials are . . . lethally toxic to waterbirds" (*Ibid*), and that "oil spills on water and land are detrimental to birds and their habitat" (FIS, Vol. 4, p. 191). "Migratory birds that seasonally reside or migrate through [Alaska] . . . are part of an international resource that is shared by many people of many nations" (FIS, Vol. 2, p. 163). The Copper River Delta, which would be traversed by the pipeline "undoubtedly supports some of the greatest remaining concentrations of birdlife on the face of the earth" (FIS, Vol. 3, p. 311). Yet "except for a few species and races, information on seasonal distribution and numbers, breeding biology, habitat requirements and migration routes for most species within the State and adjacent marine waters is scanty at best and usually either fragmentary or generalized" (FIS, Vol. 2, p. 163).[2]

c. *Seismic Concerns*

For a full two-thirds of its route, the pipeline traverses "one of the most seismically active regions in the [9] world" (FIS, Vol. 3, p. 20). And "it is almost a certainty that one or more large earthquakes will occur in the vicinity of this portion of the proposed route during the lifetime of the pipeline" (FIS, Vol. 1, p. 97). Surface faulting is acknowledged to constitute a major risk of

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[2] Among the hundreds of bird species that will be jeopardized by oil spills along the tanker route are: whistling and trumpeter swans; mallards, black brant, yellow-billed loons, and the great crested grebe; the great blue heron, emperor goose, king eider, ruddy duck, motley-faced shearwater, and least sandpiper; 14 species of gull, the endangered short-tailed albatross, long-tailed jaeger, marbled godwit, tufted puffin, whimbrel and the wandering tatler (FIS, Vol. 3, p. 309, Table 40).

pipe rupture (FIS, Vol. 1, p. 15; Vol. 2, p. 11), and can in turn "trigger landslides and sea waves that could jeopardize the integrity of the pipeline" (FIS, Vol. 2, p. 11). Yet only one active fault has actually been identified along the entire pipeline route (FIS, Vol. 4, pp. 48-49). For four large segments, which total more than 250 miles, and are characterized by the occurrence of sizeable earthquakes, faults have either not been identified or have not been verified as being active (FIS, Vol. 4, pp. 40, 41, 44, 52).

d. *Streams and Fish*

The pipeline makes hundreds of stream crossings and parallels streams for half its route. Bed scour and bank erosion at stream crossings can rupture the pipeline (FIS, Vol. 1, Summary Sheet). Yet the features of the arctic and sub-arctic environment which determine the extent of bed scour and bank erosion (such as stream icings, ice jam floods, and floods resulting from outbursts of glacier-dammed lakes) vary greatly from year to year and have not been systematically studied (FIS, Vol. 2, pp. 81-83, 97). "[T]he amount of erosion to be expected due to construction activities cannot be predicted with any degree of precision [10] because (1) the project description doesn't give important 'as-built' details, (2) the probability and extent of future floods, icings, and ice jams are unknown, (3) the erosion effects of floods are difficult to evaluate, and (4) the success of erosion-control methods is unpredictable. . . ." (FIS, Vol. 4, p. 78).

Even with the best leak detection capability now developed, as much as 750 barrels of oil could be lost every day without being detected (FIS, Vol. 4, p. 135). If the pipe were actually to rupture, more than 60,000 barrels could escape (FIS, Vol. 1, p. 23). Any major spill resulting from pipeline failure would likely find its way into a stream (FIS, Vol. 4, pp. 16-53). From the point at which it is spilled, oil would drift downstream for

considerable distances, jeopardizing not only the primary river basins but also the Beaufort Sea, Prince William Sound and the Pacific Ocean (FIS, Vol. 4, pp. 135-136). "Adequate studies on pollution and its effect on the reproductive capability of fish and invertebrates appear not to have been done" (FIS, Vol. 4, p. 199). "Detailed information is not available on the economic structure of Alaska's fisheries industry" (FIS, Vol. 4, p. 432). "[T]he cost effect of possible pollution impact on commercial fisheries is also not subject to determination, pending further studies" (FIS, Vol. 4, p. 363).

[11] 2. *Marine Impact of the Proposed Oil Pipeline*

The proposed oil pipeline will introduce the first major oil pollution into the waters of Prince William Sound and the Northeast Pacific (FIS, Vol. 4, p. 482).

At the present time, Prince William Sound is an area of "truly clean and untarnished beauty . . . teeming with marine life" (FIS, Vol. 2, p. 216). It supports a thriving commercial fishery for pink, chum, and sockeye salmon, Dungeness and tanner crabs, razor clams, herring and herring eggs, and is known to have commercial quantities of other species which have not yet been fished (FIS, Vol. 3, pp. 370-373). Moreover, it is used extensively by recreationists for salt and fresh water fishing, sightseeing, and photography. Its abundant porpoises, seals, sea otters, and sea lions, the beauty of its rugged shoreline scalloped by bays and fjords, and its backdrop of steep mountains and glaciers that creep down to water's edge afford visitors a unique wilderness experience (FIS, Vol. 2, p. 216; Vol. 3, pp. 399-402). The vast Northeast Pacific is similarly used for recreation and commercial fishing. It "is now relatively unpolluted compared to much of the remainder of the world's oceans" (FIS, Vol. 4, p. 542). Along the entire tanker route, "there is little history of casualties resulting in pollution. . . ." (FIS, Vol. 3, p. 417).

[12] "[A]ccidents and unintentional discharges would occur in spite of full utilization of technological advances and the most stringent regulations" (FIS, Vol. 1, p. 205). In an average year as much as 140,000 barrels of oil may be spilled into the marine environment as a result of tanker casualties (grounding and collisions) (FIS, Vol. 4, p. 474); additional quantities could be pumped directly into ocean waters during tank cleaning operations (FIS, Vol. 3, pp. 420-426; Vol. 4, p. 469); and there will be a continual intentional discharge of oil from a ballast treatment plant at Port Valdez, causing chronic pollution of Prince William Sound (FIS, Vol. 4, p. 467).

According to statistics prepared by the Environmental Protection Agency, less than five percent of oil spilled is recovered (FIS, Vol. 4, p. 484). Large spills in Prince William Sound "would be more difficult to contain, clean-up, and restore" than spills in other areas of the country because "of the distances from sources of ships and clean-up gear and the generally limited available manpower in the region" (FIS, Vol. 4, p. 484). "[U]nless extraordinary advances in oil containment and recovery techniques occur, almost all of the oil spilled by the tanker system would constitute an adverse impact on the marine ecosystem" (FIS Vol. 1, p. 225).

[13] Any attempt to predict the impact on the marine environment is hampered by: (1) lack of basic information concerning many types of oil toxicity mechanisms; (2) difficulty in predicting the frequency and location of spills; and (3) lack of baseline data on biotic resources (FIS, Vol. 4, p. 196). "[T]he available information on potential effects of oil pollution reveals more unknowns than proven conclusions." It is "not at all clear what the acute and long-term effects of oil upon the environment and living marine resources . . . would be" (FIS, Vol. 4, p. 623). "[T]here have not been sufficient studies . . . to describe the long-term effects of sublethal levels of

oil pollution" (FIS, Vol. 4, p. 202). "[V]ery little research has been directed toward identifying the less obvious effects of oil pollution due to intentional discharge at sea" (FIS, Vol. 4, p. 204).

Existing hydrographic surveys are inadequate for practically every area that the proposed marine transport system will traverse from Port Valdez to Southern California (FIS, Vol. 3, pp. 162-164, 168-169, 174, 177). And, at this late date—some three and one-half years after the oil companies selected Valdez as their southern terminus—"little is known about the climatology of Prince William Sound" (FIS, Vol. 3, p. 101) and "very few data concerning wind speeds [have] been collected at Valdez" (FIS, Vol. 3, p. 102).

[14] Even in the one area where it is known that there will be the intentional discharge of oil into the sea—the ballast treatment plant at Valdez—"the path[s] that the oil would take . . . cannot be predicted with the available information and the overall pollution level for Port Valdez . . . cannot be accurately predicted" (FIS, Vol. 6, p. 80). Thus, "the intentional discharge of ballast waters . . . would have some likelihood of becoming a threat to the various parts of the marine ecosystem . . . but the impact cannot be evaluated because of the variables involved" (FIS, Vol. 4, p. 216).

3. *Impact of the Gas Pipeline*

Each of the three trans-Canada gas pipeline routes considered in the Impact Statement measures more than 1,500 miles from Prudhoe Bay to Edmonton, Alberta (FIS, Vol. 5, pp. 138, 150, 161, 172). The impact Statement devotes a total of eleven pages to its primary evaluation of the environmental impact of a gas pipeline along either of these three routes (FIS, Vol. 4, pp. 492- 503), and it explains that "lack of detailed informa-

tion on specific routes and facilities obviously limits the impact analysis" (FIS, Vol. 1, p. 176).

"[M]any of [the] adverse effects" of oil pipeline construction "would be the same for the gas transportation system selected." Like the oil pipeline, "construction of an arctic gas pipeline would leave a permanent mark on the [15] landscape," although the impact of operation would be less than for an oil pipeline due to the temperature of transported gas, the general burial of the line, and the lessened impact of pipeline rupture (Vol. 4, pp. 492, 503, 583).

Each of the gas pipeline routes would have substantial environmental impacts on wilderness, fish, and wildlife over and above those associated with the oil pipeline segment of the proposal (FIS, Vol. 4, pp. 495-503; Vol. 5, pp. 143, 147). Although it is acknowledged that "it is probable that economies of . . . environmental impact will result from moving oil and gas through a common corridor," "the extent of such economies is not estimated" (ESA, Vol. I, p. C-23).

B. Chronological Summary of the Decisionmaking Process

1. *Events Prior to NEPA's Enactment*

In August 1968, substantial oil and gas reserves were discovered on the Alaskan North Slope (P. Docs. I, Tab A, p. 2). Thereafter, the interested oil companies conducted a number of investigations regarding possible pipeline routes, including studies and conversations with Canadian officials that confirmed the feasibility of an all-land route through Canada that could accommodate both oil and gas pipelines.[3]

[3] A task force established by interested oil companies concluded in a December 31, 1968, study that an all-land route through Alaska and Canada was feasible, would encounter no more severe conditions than an Alaskan route, could be constructed within a

[16] Nevertheless, in February 1969, the interested oil companies reached a "management decision" to apply for permits for an oil pipeline from the North Slope to Valdez, from which the oil would be transported to market by tanker. They made no announcement concerning their plans for North Slope gas (Ad. Rec. 1.1.4.1, Part II, p. 3).

On April 18, 1969, Secretary of the Interior Hickel established a departmental task force to set "guidelines for development of federal land from the Arctic North Slope of Alaska" (P. Docs. I, Tab B). The focus of the task force was strictly upon the oil companies' proposal. It did not consider alternative means of delivering the oil, the inevitable [17] marine transportation of oil, or transportation of gas (P. Docs. I, Tab C).[4]

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reasonable time, and could be operated successfully (Ad. Rec. 1.1.4.1.2). The study also concluded that there were "no greater anticipated right-of-way problems for this project than for other similar projects." (*Id.*, at 37). Another study concluded in January 1969 that a trans-Canada pipeline to the midwest would serve the area of largest absolute growth in demand and would be both practical and technically feasible. (Ad. Rec. 1.1.4.1.3).

Canadian Minister of Energy, Mines and Resources, Joe Greene, reviewed the early conversations with oil industry representatives in a debate in the House of Commons on March 12, 1971:

> "As early as within one month from [the] time [the Prudhoe Bay oil discovery was announced] the Chairman of the National Energy Board met with the Presidents of the oil companies who own the oil—ARCO, Humble and BP—and pointed out to them that the MacKenzie Valley here had advantages and should be considered by them." (Ad. Rec. 4.3.2.1, Vol, IV, Tab I, Ex. 4, p. 4223).

[4] Official Interior Department minutes of a May 8, 1969, meeting between the Task Force's Chairman, Russell E. Train, and representatives of certain conservation organizations, quote Judge Train as informing the conservationists not only that "the pipeline is a foregone conclusion," but that there was a possibility of a second route "from Prudhoe Bay to Canada, especially if the field is as large as estimated" (P. Docs. I, Tab D).

On May 9, 1969, the Interior Department task force was converted by Presidential directive into an interdepartmental task force. It was directed to "consider new the ways in which we can explore and develop, without destruction and with minimum disturbance, the oil resources of northern Alaska" (P. Docs. I, Tab E). The term "oil resources" was understood from the beginning by the task force to include North Slope natural gas as well as crude oil (Horton Dep., p. 25).

The oil companies—through their consortium Trans-Alaska Pipeline System ("TAPS") [5]—filed an application for an oil pipeline right of way from the North Slope to Valdez on June 10, 1969 (Ad. Rec. 1.1.1.2).[6] The [18] interdepartmental task force did not request the back-up studies that led to the route selection.[7] Nor did it inquire into the oil companies' plans for additional oil and gas pipelines or request information on the marine leg.[8] The task force submitted a report to the President

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[5] Subsequently, in 1970, TAPS was replaced by the intervenor-defendant, Alyeska Pipeline Service Co., Inc. ("Alyeska"). The stock of Alyeska is wholly owned by ARCO Pipeline Company, Sohio Pipeline Company, Humble Pipeline Company, Mobil Pipeline Company, Phillips Petroleum Company, Amerada Hess Corp., and Union Oil Co. of California. *Motion of Alyeska to Intervene as a Defendant*, p. 1.

[6] Eight days earlier, on June 2, 1969, several of the same companies had established MacKenzie Valley Pipeline Research, Ltd., ("MVPL") to continue investigations of "pipeline facilities from the North Slope of Alaska to Edmonton" (Ad. Rec. 1.1.4.1). Studies in January and June 1970, again confirmed the feasibility and cited advantages of a pipeline through Canada (Ad. Rec. 1.1.4.1.5, 1.1.4.1.6).

[7] In fact, the industry studies referred to at p. 15 n.3 and p. 17, n.6 were not received by the Interior Department until September 1971. (Horton Dep., p. 45)

[8] On June 10, 1969, the task force transmitted to TAPS a list of 79 questions, of which only two (73 and 74) concerned aspects of development not related to the oil companies' specific proposal. The negative responses to these questions were couched in terms

on September 15, 1969, which emphasized its almost exclusive focus on the TAPS' proposal (P. Docs. I, Tab G).

Even in these early days prior to NEPA's enactment, concern was expressed by responsible federal officials about the task force's passive approach. For example, by letter dated July 7, 1969, Lieutenant General William F. Cassidy, Chief of the Corps of Engineers and Executive Secretary of the Corps' Environmental Quality Council, noted "the great activity in the private sector aimed at developing the natural resources of Alaska," including "plans . . . for natural gas pipelines," and protested that:

[19] "The development of Alaska is proceeding on a resource by resource, an agency by agency or an industry by industry basis with an apparent lack of regard for the total Alaskan development or possible large-scale environmental consequences of such development. The burden of providing total planning and concern for the total environment must rest on the state and federal agencies responsible for such development. . . . As development activities grow with an amazingly rapid and increasing pace, the government is in imminent danger of losing its opportunity to step in and provide the total planning required. There is a real danger that actual private development will preempt governmental efforts." (P. Docs. I, Tab H).

The Interior Department was aware of the developments summarized in General Cassidy's letter (Horton Dep., pp. 248, 252). But the Department's pre-NEPA

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of TAPS' plans, *not* the plans of the parent oil companies. In fact, no reference was made by TAPS even to the recently established MVPL (P. Docs. I, Tab F). There were no follow-up inquiries by the Interior Department (Horton Dep., p. 40).

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approach remained one of deference to industry initiatives.[9]

2. *Events from the Enactment of NEPA (January 1, 1970) Through Hearings on the Preliminary Impact Statement (February 1971)*

The National Environmental Policy Act became effective on January 1, 1970. Yet, throughout the year 1970 the Department did not alter its basic approach to the pipeline.

Secretary Morton himself has most succinctly characterized the Interior Department's efforts during this period:

> "Wally Hickel was very prejudiced toward the pipeline system in Alaska. . . . His drive and his force and his desire was there. . . ." (Morton Dep., p. 66).

[20] Thus, following enactment of NEPA, ultimate approval of the oil companies' proposal remained a foregone conclusion within the Interior Department. Indeed, within a week of the effective date of the Act, Secretary Hickel announced that "we are prepared to grant a permit [for TAPS] when all geological and engineering conditions are met." And, on January 14, 1970, a Department of Interior press release quoted the Secretary as assuring TAPS' chief executives that "the pipeline will indeed be built." (P. Docs. I, Tab I).

After NEPA's enactment, the Department intensified its narrow emphasis on the TAPS' proposal. On Febru-

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[9] Then Undersecretary Train stated in 1969 before a Senate committee:

> "I believe there has already been an investment in the neighborhood of $200 million in connection with the pipeline and related matters. So that, in a sense, the private sector, at least, has made a decision that this is an important resource that it expects to develop, and this has been a traditional way in which such decisions have been made in this country." (Hearings, Senate Committee on Interior and Insular Affairs, 91st Cong., 1st Sess., Part 2, p. 124 (October 16, 1969)).

ary 20, 1970, the Department formed a Technical Advisory Board to evaluate the scientific and technical engineering aspects of TAPS (P. Docs. I, Tab J). *See also* Ad. Rec. 1.1.2.2. No comparable groups were formed to consider the development of gas resources or alternative routes for the oil pipeline. In fact, Mr. Horton testified:

> "Q. Do you recall any discussions at this time, following the [passage] of NEPA, January 1970 or in the first quarter of 1970, in which the Task Force decided to wait and hold back and review carefully whatever information might be available on possible alternatives before having its Technial Advisory Board and other groups focus entirely on the TAPS proposal?
>
> "A. No, I don't." (Horton Dep., p. 73).

On March 5, 1970, Secretary Hickel informed the President that he was prepared to grant permits authorizing the oil companies to construct a haul road from [the Yukon] to the North [21] Slope—an act which was recognized within the Interior Department as tantamount to ultimate approval of the pipeline itself. On March 20, 1970, the Department released an eight-page "Environmental Statement Yukon River-North Slope Road" (P. Docs. I, Tab K).

Plaintiffs filed suit on March 26, 1970. This Court granted them a preliminary injunction on April 23, 1970. In its conclusions of law, the Court ruled that the Secretary must consider the full scope of the project before making decisions whether to approve all or part of it. 325 F. Supp. 422 (1970).

The Court's ruling did not cause the Department to reassess its approach to the pipeline. On April 24, Secretary Hickel assured the Alaska State legislature: "There is no longer a question of 'if'. . . . And I have announced that I will issue the permit for the pipeline right way."

factors, I added a third, "E", and that is Education. We have an awful lot of educating to do.

Mr. FROME. I think, therefore. Congress should fund the "environmental education program."

Mr. Melcher, again, I want to say it has been a privilege to be here. I don't know whether the gentleman from Ohio was through with me.

Mr. REGULA. We could pursue this all day. But essentially, I understand the thrust of what you said.

Mr. FROME. I will be in your district with the Trout Fishermen next week and I am going to speak at their annual meeting of "Trout Unlimited", and you know the terrible problems they are facing. But I feel that, and pray that, this subcommittee will deal, not with the Alaska pipeline by itself, but with the whole broad issue of energy and our public lands.

Mr. MELCHER. Thank you very much, Mr. Frome. I hope your trip to Montana and Wyoming is as inspirational for the people out there as you have been for us this morning.

Mr. FROME. Thank you.

Mr. MELCHER. This completes the hearings this morning and it also completes the hearings on testimony by witnesses on these related bills, pipeline bills, right-of-way bills. As I announced earlier at the start of this morning's session, we will hear on June 15 from the Department of the Interior officials, just on the point of their Environmental Impact Statement.

No further witnesses have asked to testify and this does conclude that portion of the hearings.

However a statement from Prof. T. Y. Lin, professor of civil engineering. University of California, Berkeley, will be placed in the record at this point.

[The statement follows:]

STATEMENT OF T. Y. LIN, PROFESSOR OF CIVIL ENGINEERING, UNIVERSITY, BERKELEY, CALIF.

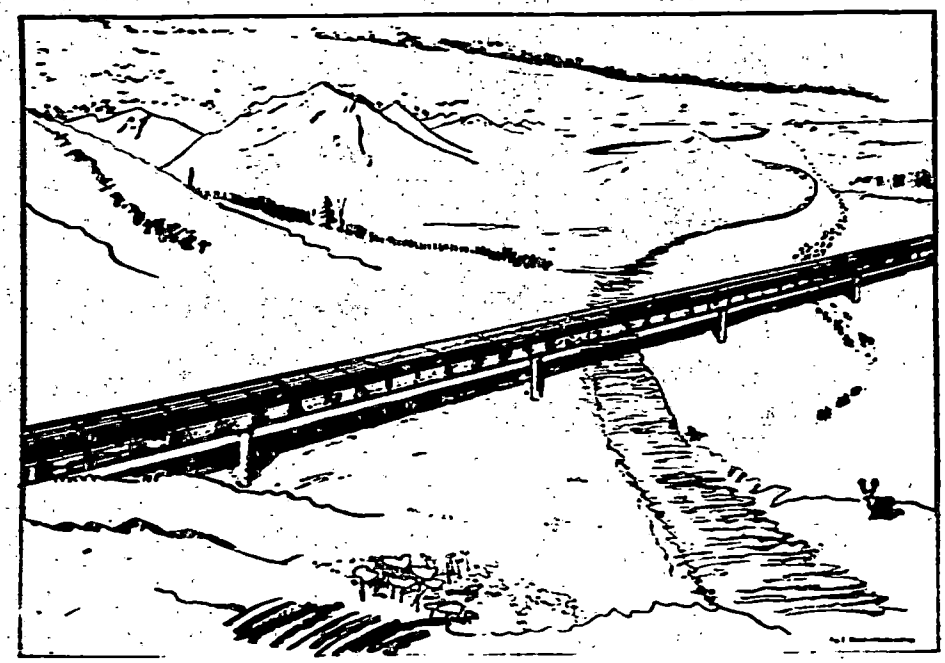
INTRODUCTION

I would like to first quote M. McLuhan: "Our Age of Anxiety is, in Great Part, The Result of Trying to do Today's Job with Yesterday's Tools—with Yesterday's Concepts."

Let us not persist in trying to build a pipeline like a sewer, or to slightly raise it above ground. When this old concept is applied to a new land like Alaska, it creates problems of heat transfer to permafrost and tundra, of serious oil leakage, and of obstruction to Caribou migration. A proliferation of these and other lines and roads will eventually turn the wonderland into a junkyard.

Let us apply to-day's concepts and to-day's technology. The concept is to build one transportation artery to contain several oil and gas pipelines, plus transportation, communication, and power lines, Fig. 1. The technology is to mass-produce concrete sections and to erect them with bridge launching techniques, forming an elevated transit tube, Fig. 2. This is the Integrated Pipeline Transportation (IPT) System, which I have developed. It is not a patented system. It is dedicated to our people and our land.

Fig. 1 Typical Cross Section



Being elevated above ground, IPT requires a minimum right-of-way. In fact, it is built essentially on air right.

IPT will pose no environmental hazard and degradation. It will provide a fail-safe protection for oil pipes. It will result in overall economy of construction, on account of concentration of efforts. Its higher initial investment will be paid for in the long run. Enormous benefit is accrued from the appreciated land value and conservation.

ARCTIC OIL RESERVE AND TRANSPORTATION

This IPT System can be applied to any route in the Arctic whether through Alaska or Canada. For purpose of this discussion, I will use the Alaska route from Prudhoe Bay to Valdez as an example.

Alaska, with its 26,000 miles of coast lines, has 2/3 of the entire U. S. Continental Shelf, which is known to be oil rich. Estimates of Alaska's potential oil reserve go as high as 100 billion barrels, which contains at least 100 trillion cu. ft. of natural gas. More are expected in Siberia and the Northwestern Territories of Canada.

The oil industry now plans for only one 48" oil pipeline running from Prudhoe Bay to Valdez, known as the Trans-Alaska Pipeline System (TAPS). While this pipe will carry a maximum of 2 million barrels of oil per day, U.S.A. daily consumption, now at 20 million barrels, will be 30 million barrels by 1985. If the Arctic resource it so be a major contribution, we will need several oil and gas pipelines. We will also need people and freight moving systems, communication and power lines. It is therefore shortsighted to talk of only one pipeline.

The danger of a piecemeal solution lies in the fact that an improperly constructed pipeline will result in such environmental degradation that any future addition of other lines may become completely impossible in the face of aggravated public opposition.

What we need is a solution that will take into account the future of our nation, the future of Alaska and of our people as a whole. IPT offers such a solution.

IPT AND ENVIRONMENTAL PROTECTION

This Elevated Tube offers specific environmental protection features, as follows:

1. The concrete tube enclosing the pipelines will protect them from overstressing under extreme variations. The flowing oil generates heat and serves as a "radiator" in winter, while the concrete tube serves as an insulator in summer.

2. The concrete tube will act as a second line of defense so that any accidental oil leakage will be contained within. It also protects the pipe against possible sabotage.

3. The concrete tube, elevated above ground, is not in touch with tundra and permafrost, thus solving the problem of heat transfer from the pipe to the ground.

4. The piers can be installed through permafrost as has been done for similar structures. The concrete tube can be supported on soft pads on pier top for energy absorption during earthquakes. Oil pipes can be hung inside the concrete tube so as to roll with seismic disturbance thus avoiding rupture.

5. The elevated tube will permit Caribou migration and the like. Although caribous do not go underneath structures which are only a few feet above ground, these tubes are elevated at least 30-ft. high so that it would not hinder such migration.

6. The construction of these piers and tubes is to be accomplished by a "bridge launching technique" whereby the concrete tube and the piers will be installed progressively as the structure extends forward, Fig. 3. Construction roads will be required only as access to production plants which can be situated in chosen areas to minimize adverse environmental effects.

7.

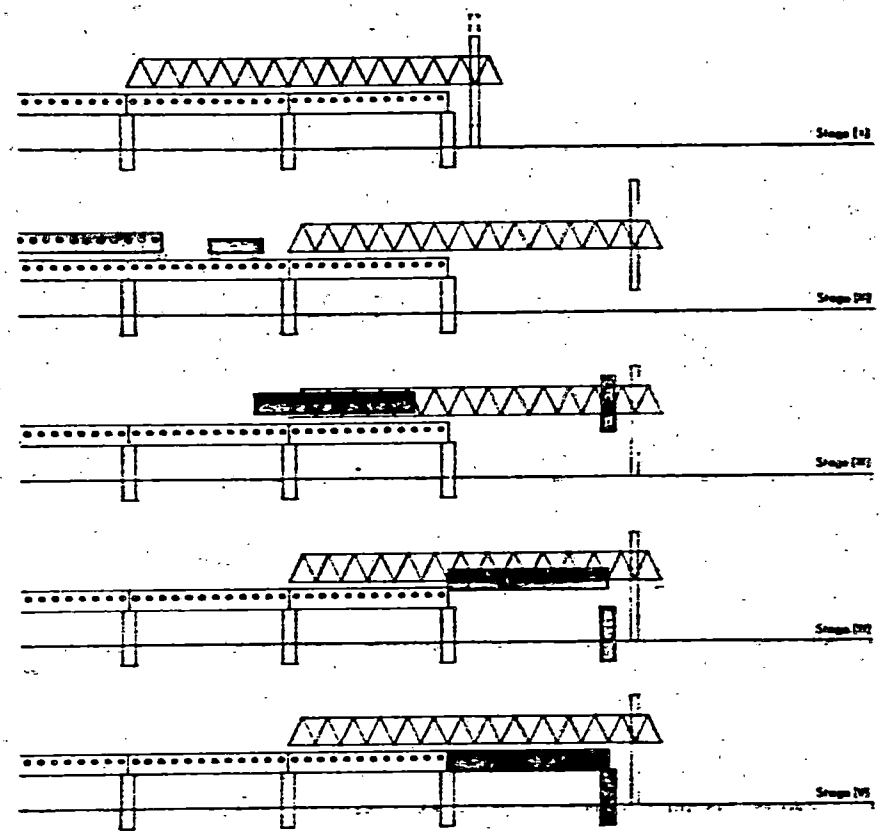


Fig. 3 Construction Sequence (Schematic)

7. This one tube integrates all modes of transportation including communication, power, oil, gas and water lines. Thus we will have one artery in place of a proliferation of lines and roads. Facilities along this artery will help one another with respect to contingency planning.

8. The tube is designed to accommodate different utilities at different times. Highway lanes at the initial stage can be eventually converted into rapid transit lines to minimize air pollution.

It is recognized that this system will not leave Alaska in its original wilderness. But the factory-produced tubular walls, sculptured with symbolic expressions performed by the greatest artists of our times, can be designed to harmonize with and enhance the environment. Thus the Aretic Region can be developed and conserved in the best manner possible.

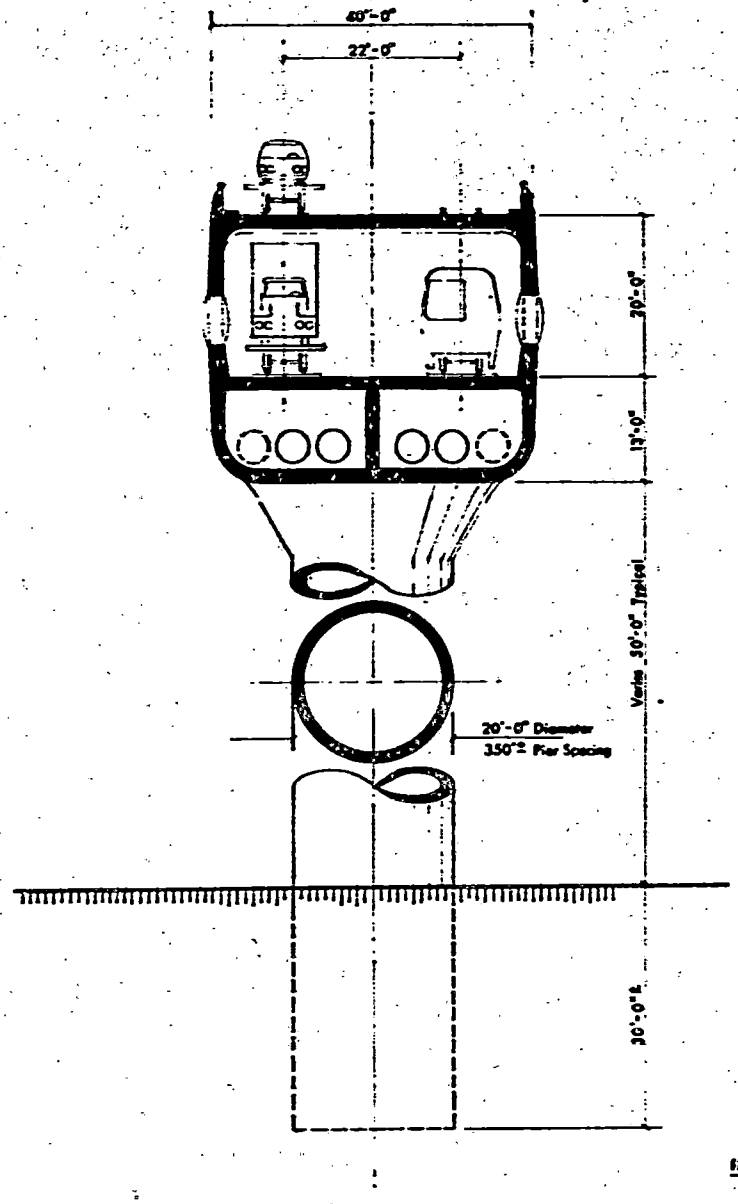
SOME VERSIONS OF THE ELEVATED TUBE

In order to provide maximum protection and minimum maintenance, the tube will be made of precast concrete segments post-tensioned together into spans supported on piers at some 300-ft. intervals.

A maxi version of the tubular cross-section will enclose six pipes, Fig. 4, each about 4-ft. in diametr. It will include four lanes of rapid transit with two lanes on top of the tube and two lanes inside. The lanes inside the tube will provide all-weather transportation, viewing through windows along the sides of the tube.

This maxi version would be sufficient for many decades to come and can be converted into other systems of freight and people movement. However, it will require heavy inital investment perhaps unwarranted at this time. Conservationists also believe that such a grand scheme may overstimulate the development of the region. Hence, a midi version is suggested to be more suitable.

The midi version, Fig. 1, will still have space to contain six pipes transporting oil, gas, power and communication lines, etc. However, only two rapid



Fig'4 Typical Cross Section

transit lanes are provided on top of the concrete tube, with none inside. Device and equipments will be needed to keep the exposed deck free of snow and ice. At first these two lanes will be used for highway transportation. Eventually, they will be converted into rapid transit lines to minimize air pollution and to supply greater transportation capacity.

A design resembling a mini version of this tube has been independently proposed by Mr. John P. Hopkins of Seattle. The cost of constructing this mini version, which encloses only one pipe and supplies one lane of traffic on top, was estimated by Mr. Hopkins to be $3 billion at 1973 price, including the oil pipe and its pumping stations. His intention was to add another mini tube side by side when required.

METHOD OF CONSTRUCTION

In order to preserve the delicate tundra and permafrost areas in Alaska, these tubes will be erected using a technique similar to bridge launching over rivers, Fig. 3.

Supporting piers will be established into permafrost at 300-ft. intervals. A steel truss, operating from the completed tubular section, would cantilever 300 ft. to drill and establish these piers. The same truss would also transport and launch 300-ft. long tubular sections to span between these piers.

About 20 major fabricating and constructing plants would be established along the route. These plants would precase both the piers and the tubular sections which would then be post-tensioned into 300-ft. pieces for transportation and installation. These techniques are currently available. Concrete aggregates would be quarried at or near each plant. Temporary access roads to service the plants will be constructed with minimum spoil to the environment.

While the entire tubular concrete structure would be constructed at once, only the pipelines with their pumping stations, would be immediately installed. The addition of other lines will be pre-planned so that they can be introduced at various locations along the tube.

When traversing through non-delicate areas, it is possible that the concrete tube may be directly supported on the ground or even partly burried, although the resultant saving may not be appreciable.

YEAR-ROUND PRODUCTION AND ASSEMBLY

The speed and economy of construction is greatly enhanced by using modern mass-production techniques such as employed for concrete pipe manufacturing plants and for the segmental type of bridge construction. These factories will be highly mechanized so as to require the least amount of labor and to insure a high and uniform quality of production.

Factories will be covered to enable year-round production. In addition, the transportation of these piers and spans, including their erection, will be executed under the control of technicians working in enclosed areas. The launching truss will also be weather-proofed so that it can function well under adverse conditions.

Power requirements for construction, production and transportation will be supplied at each factory and launching site. All will be done to insure speedy construction without environmental spoil.

COST ESTIMATE

A cost estimate is presented for building 800 miles of the midi version from Prudhoe Bay to Valdez. The stimate is based on 1973 prices as projected for Alaska, taking into account the higher cost of labor and material in that region. Escalation and interest during construction are not included.

By concentrating all construction activities in the factory, the usual labor-intensive field operations take a different appearance. The cost of construction becomes much lower for such a massive mechanized production, and is broken down as follows:

	Million
(1) Materials (f.o.b. Anchorage):	
40,000,000 bbl cement at $9 per bbl	$360
400,000 tons of prestressing cables, $500 per ton	200
600,000 tons of reinforcing steel, $400 per ton	240
Total	800
(2) Plant and Equipment:	
20 plants along route at about 40-mile intervals to quarry aggregate, mix concrete, cast and assemble concrete piers and tubes, totaling 20,000 yd.³ in 5 years, each plant at 20, 000 yd.³/mo. capacity at $20,000,000per plant	400
40 erecting and transporting jigs, including pier drilling and installation facilities at $5,000,000 per set	200
Power consumption	100
Total	700
(3) Labor:	
20 plants at 200 men each ---men	4, 000
40 erector sets at 50 men each ---do	2, 000
Others ---do	4, 000
Total ---do	10, 000
10,000 men at $30,000 per year for 5 years	1, 500
(4) Access roads 600 miles at $500,000	300
(5) Transportation (Anchorage to site)	200
(6) Pipeline (1 oil and 1 gas) and 12 booster stations	1, 500
(7) Management and engineering at 10 percent of $5 billion	500
(8) Miscellaneous and contingencies	500
Total	6, 000

The above cost of $6,000 million for 800 miles means $7.5 million per mile for the midi version. A similar estimate for the maxi version indicates that it will cost about 50% more than the midi version. Although the apparent cross-sectional area of the maxi concrete tube is more than three times that of the midi version, hollow spaces can be provided within the walls of this large tube by polyethylene foams so that the actual amount of concrete required would be only about twice that of the midi version. Techniques for fabrication of these hollow wall tubes have already been employed in Europe in the production of hollow core slabs.

The above cost per mile will apply to the entire Arctic Region including Canada. It is therefore interesting to quote the following separate estimate made for another proposal, for purpose of comparison.

In March, 1973, Premier David Barrett of British Columbia, Canada, proposed a double-track railway for oil and gas transportation from Prudhoe Bay, Alaska, to Lower Post, B.C., on the Yukon border. This 1200-mile route was estimated to require capital investment of $3 billion which includes $1.8 billion of road-bed, bridge and tunnel construction. From Lower Post, pipelines are to be laid through Canada to Edmonton and Seattle. If this 1200-mile would be built of IPT System using the midi version at $7.5 million per mile, an investment of $9 billion is required. The operating cost, however, will be far less than using railways.

As another comparison, the TAPS project estimated to cost $1 billion in 1969, has been increased to $3 billion in 1973. Unfortunately, a breakdown of this $3 billion is not available to the public. A large part of this $2 billion increase, attributed to constructional up-grading to meet environmental standards, actually represents a futile attempt to "do to-day's job with yesterday's tools—with yesterday's concepts".

HOW TO FINANCE THE SYSTEM

While we can construct 800 miles of the midi version in Alaska, including two pipelines, at a cost of $6 billion, it will cost little less if we omit one pipeline. Therefore, if we were to build only one pipeline, the Integrated System cannot be economically justified in terms of oil transportation alone. However, if the additional land transportation supplied by the tube is to be paid for by

its beneficiaries, the scheme is profitable even for one pipeline and certainly if two or more pipelines are included.

To finance this project, we could issue revenue bonds based on the income to be derived from oil transportation and other operations. But, in the long run, the owner of the land along the route gets the most benefit. At the present time, most of the land belongs to the Fderal Government. It follows that our Federal Government should heavily invest in this project or at least guarantee these bonds. The land of Alaska properly planned and developed along this route will surely appreciate many tens of billions of dollars. To this end, an investment of a few billion dollars will yield an extremely high benefit-cost ratio indeed.

If the Federal Government wishes to sell a small portion of the land en route, many billion dollars can be raised from investors in this country and abroad. Of course, these lands should be sold to private parties only on the condition that their development will be controlled to achieve maximum benefit to the people as a whole, taking into account both environmental and developmental requirements.

Similar financial situation exists if we want to build other lines in the Arctic, such as from Prudhoe Bay along Mackenzie Valley or the Yukon Territories to Edmongton and Seattle. The IPT System is especially desirable for ecologically sensitive regions, but may not be the most economical for the entire route. An optimum combination of modes of construction can be arrived at after some schematic studies are conducted for each region.

TIME TABLE

Construction time does not vary greatly with the length of the line. Since more points of attack can be established for a longer line. For an 800-mile route, a 5-year construction period appears to be reasonable while 4-year is probably the lower limit. This should be preceded by one year of engineering schemes and drawings can be continued after the first year. Thus the total period for engineering and construction would amount to six years with the possibility of being shortened into five years.

When rushed, a 1200-mile line can be built within the same period.

CONCLUSION

Let us plan not only for the immediate present, but also for the foreseeable future. Let us build not for one segment of our people, at the sacrifice of another. Let us integrate all modes of transportation so as to develop our resources and conserve our land at the same time.

This can be done using today's concept and today's technology. So let us think and then let us begin.

ACKNOWLEDGMENTS

I wish to acknowledge the following persons who have contributed their thinking toward the development of this IPT System: Messrs. Martin P. Korn, David Mitchell, James N. Murray, Sidney Stotesbury, Robert Wagstaff.

1. "Alaska's $50 Billion Boom", Forbes, November 15, 1969, pp. 30-46.
2. "Inter-Continental Peace Bridge", ICPB Inc., 1970.
3. "Some Estimates of the Thermal Effects of a Heated Pipeline in Permafrost", A.H. Lachenbruch, U.S. Geological Survey Circular No. 632, 1970.
4. "Environmental Impact Statement for the Trans-Alaska Pipeline", U.S. Department of the Interior, January 1971.
5. "A Report: On the decision to build the TRANS-ALASKA PIPELINE", Patrick Griffin, California Engineer, April 1971, pp. 4–15.
6. "Peace Bridge Proposal", Barbara J. Brady, San Francisco Business Magazine, Greater San Francisco Chamber of Commerce, December 1971.
7. "Final Environmental Impact Statement—Proposed Trans-Alaska Pipeline", U.S. Department of the Interior, 1972 (six volumes).
8. "The Great Alaska Pipeline Controversy", Paul Frigges, The Readers Digest, November 1972, pp. 125–129.
9. "The Way Out", The Premier's Office, Parliament Buildings, Victoria, B.C., Canada, 1973.

Mr. MELCHER. We have a letter received subsequent to this hearing from Mr. Brandborg, dated June 14, 1973, in response to invitation to submit comments on the adequacy of the environmental impact statement on the proposed Trans-Alaska Pipeline (TAPS).

[The letter with additional material follows:]

June 14, 1973

Hon. John Melcher, Chairman
Subcommittee on Public Lands
Committee on Interior and Insular Affairs
United States House of Representatives
Washington, D.C. 20515

Dear Congressman Melcher:

This letter is in response to your invitation to submit comments on the adequacy of the environmental impact statement on the proposed Trans-Alaska Pipeline (TAPS). These comments are submitted on behalf of the Environmental Defense Fund, Inc. and Friends of the Earth, as well as The Wilderness Society.

Some criticisms of the environmental impact statement and the Department of the Interior's approach to the issue of delivery of North Slope oil and natural gas resources have already been presented to the Subcommittee in testimony by representatives of environmental groups, including a panel of experts who testified on May 17, 1973. As you know, the TAPS proposal appears to envision one pipeline route across Alaska for North Slope oil (plus a hazardous marine transport system) and a completely separate pipeline route across Canada for North Slope natural gas. Our organizations have repeatedly commented on the failure of the Interior Department to evaluate the eminently reasonable alternative to TAPS of an all-land common corridor across Canada which could accommodate both the oil pipeline and the anticipated pipeline for delivery of North Slope natural gas, as well as a possible second pipeline for delivery of additional North Slope oil. The avoidance of needlessly duplicative environmental degradation, as well as the potential economic savings, from such a common corridor appoach appear to us to present substantial issues of public concern. Yet, Interior has, regrettably, refused over the past four years to conduct an objective evaluation of the common corridor alternative.

Attached to this letter are the following materials which supplement our earlier testimony and which we believe are pertinent to a consideration of the adequacy of the environmental impact statement and particularly the treatment of the Canadian alternative:

A. The brief on the NEPA issues submitted by our organizations to the Court of Appeals in the pipeline litigation is attached at Tab A. Portions of the brief which are especially relevant to the Canadian alternative (pp. 12 to 39, 51 to 65 and 106 to 116) are marked as Tabs 1, 2 and 3.

B. When the environmental impact statement was issued, our organizations submitted four volumes of comments, containing more than 1,000 pages of detailed expert evaluation of the statement's treatment of environmental,

economic and other issues. We are supplying one complete set of the comments for the Subcommittee's convenience. Because of the size of the comments, however, we are attaching to this letter only the summaries of the comments which accompanied them and were prepared by our counsel. The summary for Volumes I-III, dealing respectively with engineering and other technical matters, marine impact, and terrestrial impact, is attached at Tab B-1. The summary for Volume IV, dealing with economic and security issues, is attached at Tab B-2.*

C. The Department of the Interior conducted a grossly inadequate review of the extensive comments which plaintiffs submitted. Department experts were required to review these comments and those by other interested parties in less than two days, between May 8 and May 10, 1972, the day before Secretary Morton announced his decision to approve TAPS. See NEPA Brief, Tab A, pp. 37-39, 96-102. Nevertheless, the major deficiencies in the statement are so obvious that even in these hurried circumstances, Department officials who had played key roles in preparing the statement acknowledged serious shortcomings.

The comments on environmental matters of Dr. David A. Brew (Tab C) are of particular significance. Dr. Brew was the Department expert who was directly in charge of preparing the impact statement. Dr. Brew evaluated, among other comments, those of Dr. Myrick Freeman, Professor of Economics at Bowdoin College, who testified before this Subcommittee with other experts on May 17, 1973 (Tab C-1).

Dr. Freeman faulted the impact statement for failing to contain any "common corridor analysis," i.e., any basis for weighing the environmental, economic, and other aspects of a Canadian common corridor for oil and natural gas pipelines against the alternative of the TAPS oil pipeline and marine tanker delivery system in addition to a completely separate Canadian route for a gas pipeline, and possibly a second oil pipeline in addition.

Dr. Brew, responding to Dr. Freeman's criticism, stated (Tab C-1, p. 1):

> Freeman's [common corridor] analysis, although not incorporating all the available environmental information, is precisely the kind of approach that our own truncated-by-time, etc., comparative analysis should have taken. The "conclusions" draft attached to my comments on the Alyeska submission is a less sophisticated attempt to do the same thing. Through systematic analysis, it emerges that a joint oil and gas trans-Canada corridor is clearly to be preferred on environmental grounds and that more analysis is needed to establish the ranking on an economic basis.

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*Volume IV also contained discussions of the attitude of the Canadian government and of environmental and other information available from Canadian sources (but not employed in the environmental impact statement) which would have assisted in an adequate comparison of TAPS and the Canadian alternative.

Dr. Brew, in his comments on the "Alyeska submission," referred to in the previous quotation, elaborated significantly on his conclusion regarding the evident environmental superiority of the Canadian common corridor approach which he indicated Interior had ignored throughout the preparation of the impact statement. He declared:

> Considering (1) the clear threat to the marine environment that any tanker system would impose and the potential environmental costs that would accompany such a system, (2) the threat that zones of high earthquake frequency and magnitude would impose on pipelines, and(3) the lesser environmental impact of a single corridor as compared with two corridors, it is apparent that environmental impact would be least for and environmental costs minimized by a gas and oil transportation system that (1) avoided the marine environment, (2) avoided earthquake zones, and (3) placed both oil and gas pipelines in one corridor. Table B shows a general comparison of marine-only, marine and overland, and overland-only routes that summarizes these relations in a non-specific way. The trans-Alaska-Canada alternative routes either along the coast or across the Brooks Range to Fort McPherson, thence up the Mackenzie Valley to the vicinity of Edmonton, would meet the above criteria regarding minimizing environmental impact and would, from that point of view, be preferable. Of the two possible routes mentioned between Prudhoe Bay and Fort McPherson, the inland route across the Brooks Range appears on several grounds (see table 1B, v. 5 of impact statement) to be likely to cause the least overall adverse impact.

Dr. Brew, finally, acknowledged that our organizations' comments on the availability of information from Canadian sources revealed the existence of "substantive new information" which was not employed in preparing the impact statement and would have contributed to a more adequate comparison of alternatives (Tabs C-3, -4, -5). Since Dr. Brew made those comments, of course, both the Canadian government and private industry have continued to develop additional information which both would improve a common corridor analysis and decrease the delay factor in developing and processing applications to build oil and natural gas pipelines in Canada. Some of the information, including a feasibility study of a Canadian oil pipeline by MacKenzie Valley Pipeline Research Ltd., is discussed in the May 17, 1973, testimony before the Subcommittee by John F. Dienelt, counsel to plaintiffs (see Testimony, pp. 17-22).

D. A final attachment pertinent to the adequacy of the Department's consideration of the Canadian alternative is the comment of Dr. Nicolai Timenes, Jr., on Alyeska's arguments regarding economic, security and political considerations (Tab D). Dr. Timenes was the staff member of the Department of the Interior's Office of Economic Analysis who was responsible for preparation of numerous sections of the three-volume

Economic and Security Analysis which was published with the environmental impact statement. While Mr. Timenes' comments refute a number of the "self-serving and disingenuous" contentions which were made in the Alyeska submission and have been repeated by industry in testimony before this Subcommittee and elsewhere, one comment bears particular emphasis. In response to the Alyeska claim that "[i]n the United States national interest, North Slope crude oil should be delivered to the West Coast (District V) rather than the Midwest (District II)," Dr. Timenes states (Tab D, p. 1):

> Alyeska states that this conclusion is stated either directly or by implication in our analysis; this is not so. Some of the comments by General Lincoln indicate that this is his position, but nowhere does he provide a convincing rationale for the assertion. The overall conclusion is, I think, not sustained by the Alyeska argument in matters of detail. (Emphasis supplied.)

In fact, Dr. Timenes continues, the Alyeska argument that "[t]he dependence on foreign crude sources in District V is much greater than comparable dependency in the aggregate of Districts I-IV. . . seems to conflict with the experience of recent winters, when it has been New England which has suffered shortages of residual oil (or at least their manifestation in high prices)."

The few comments which the Department of the Interior's own experts had time to make on the adequacy of the environmental impact statement and their refutation of many of the specious arguments made in support of the TAPS proposal compellingly reinforce plaintiffs' position that further study of the Canadian alternative is necessary before an informed decision on delivery of North Slope oil and gas resources in the national interest can be made. We wish therefore to reemphasize our support for the approach of the Udall-Anderson and Ruppe bills, which would require a study by an objective body within a prescribed period of time, after which Congress would decide which pipeline should be built.

Sincerely,

Stewart M. Brandborg

Stewart M. Brandborg
Executive Director
The Wilderness Society

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May 28, 1988, Saturday, Home Edition

SECTION: Metro; Part 2; Page 9; Column 3; Letters Desk

LENGTH: 411 words

HEADLINE: ASSESSING DUKAKIS, BUSH AND JACKSON

BODY:

Bush recently displayed himself as being both knowledgeable and protective of the quality of our environment ("Strong Environmental Concern Voiced by Bush," Part I, May 17). His concern was quite a pleasant surprise, since he represents an Administration that has been anything but sympathetic to the environment. Bush's statement, "I want to leave a legacy of unspoiled land for our children and our children's children," embodies an outlook I have held for many years.

In fact, I often use it as a yardstick to judge potential policy-makers, since the government has a vested interest in maintaining natural resources for future generations, an interest too often ignored.

My initial optimism faded as I read on, "Bush believes petroleum exploration and production in Alaska have improved wildlife habitat" because, he says, " Caribou like the (Trans- Alaska) pipeline. . . . They lean up against it, have lots of babies, scratch on it." Could this be the basis of a carefully thought out political position? Are there no other wildlife besides caribou in Alaska? What about risks? Accidents happen, even if one hasn't happened yet, and spilling millions of gallons of crude oil into the fragile tundra where caribou feed could disrupt more than their mating habits. And, isn't there more to oil exploration and production in Alaska than the pipeline?

Surprisingly, the very next day such questions were answered in an editorial ("Go Slow in Alaska," May 18) responding to the Reagan Administration's support of new exploration for oil and gas in a wildlife refuge in Alaska. It stated that a (suppressed) Department of Fish and Wildlife report concluded "that environmental damage at Prudhoe Bay is far greater than had been envisioned when the Trans- Alaska Pipeline was built." The facts are "11,000 acres of wildlife habitat (have been) lost at Prudhoe Bay," and "the increase in caribou numbers may be attributable to the killing, removal or displacement of bears and wolves, the caribou's natural predators." This could be pretty bad, as a natural population without predators eventually eats itself into starvation.

At best, Bush's statements are pure campaign hype. At worst? Well, his apparent lack of knowledge and gross oversimplification of this complex environmental issue reminds me of President Reagan's statement that "trees cause air pollution." Their safari may not end until there are no wild places left on earth.

JOHN E. SARNA

Los Angeles

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Letter to the Editor

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July 23, 1980, Wednesday, Late City Final Edition

SECTION: Section A; Page 10, Column 1; National Desk

LENGTH: 573 words

HEADLINE: ENVIRONMENTALISTS WIN KEY TESTS ON ALASKA LANDS

BYLINE: By PHILIP SHABECOFF, Special to the New York Times

DATELINE: WASHINGTON, July 22

BODY:

Supporters of strongly conservationist legislation to protect Alaska's lands and wildlife won a series of test votes in the Senate today by substantial margins.

But the two Senators from Alaska, Ted Stevens, a Republican, and Mike Gravel, a Democrat, indicated that they might introduce a long series of amendments to delay passage of the bill and perhaps persuade the Senate to modify the contemplated restrictions on land use.

At issue today was one of five amendments reflecting the conservationist position in the Senate that were introduced to modify the bill, which was reported to the floor by the Senate Energy Committee. That bill would protect less land and allow more development of timber, oil and minerals than legislation passed by the House of Representatives.

Today's amendment, introduced by Senator Gary Hart, Democrat of Colorado, and Senator John H. Chafee, Republican of Rhode Island, would add about 14 million acres of wildlife refuges to the 43 million acres proposed by the Senate committee. The House bill would set aside 80 million acres in Alaska as wildlife refuges.

Major Opportunity Is Seen

''Never before and never again will we be able to set aside vast tracts of wildlife-rich lands for the enjoyment of future generations,'' Senator Chafee said.

A vote to table the amendment and two votes to weaken it were defeated by 2-to-1 margins, raising the hopes of environmentalists who crowded the Senate lobbies that the bill as a whole was in good position for passage.

Opponents of the amendment said that it would preclude the development of vital oil and natural gas and other mineral reserves in Alaska.

Debate was unusually acrimonious, particularly statements by the Alaskan Senators. Senator Stevens, for example, warned that passage of the amendment would produce a ''revolt'' in the Western states.

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Later he charged that maps of oil reserves used by supporters of the amendment were falsified by the Interior Department ''to prove their point.''

The Carter Administration is strongly supporting the conservationist forces in the fight over the Alaska lands bill.

Alaska Wildlife Reported Well

LOS ANGELES, July 22 (AP) - The development of the Prudhoe Bay oil field and construction of the Alaskan pipeline has not ''caused major changes'' in the indigenous wildlife population along the North Slope, according to a 10-year study released today.

The study conducted by Angus Gavin, a Canadian zoologist, began in 1969, a year after the report's sponsor, the Atlantic Richfield Company, discovered oil at Prudhoe Bay on Alaska's North Slope. Arco and other petroleum interests developed the 250-square-mile oil field and constructed the pipeline to transport the crude oil south to Valdez for shipping.

While some oil company activity ''may have disrupted the overall environment to some degree,'' Mr. Gavin's report said, ''the effects have not been of a drastic or permanent nature.''

The study said that although there have been disruptions and disturbances within the wildlife habitats, ''this should not have any lasting or detrimental effects.'' The central Arctic herd of caribou around Prudhoe Bay, which has remained between 5,000 and 7,000, was cited as proof of the success of wildlife safeguards and the animals' adaptability.

GRAPHIC: Illustrations: PHOTO OF DEMOCRATIC SENATORS

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August 26, 1990, Sunday, Home Edition

SECTION: Part A; Page 1; Column 1; National Desk

LENGTH: 1723 words

HEADLINE: MIDEAST CRISIS ENDANGERS PRISTINE ALASKAN REFUGE;
OIL: SHORTAGES MAY MAKE DRILLING A CERTAINTY. AS EMOTIONS SHIFT, ENVIRONMENTALISTS PLEAD FOR CALM.

BYLINE: By JOHN BALZAR, TIMES STAFF WRITER

DATELINE: KAKTOVIK, Alaska

BODY:

Once again, distant drums of man and crisis resound across the great lonely overpowering vastness of the Arctic National Wildlife Refuge.

First there was the Exxon oil spill in Prince William Sound. That seemed to seal the future of this fragile tundra plain, America's Serengeti. Surely, this land would be preserved, not drilled and put in jeopardy by big oil.

Now, however, Iraq's invasion of Kuwait has recharged the national debate over oil development in this largest remaining Arctic preserve, placing enormous and swiftly building pressure on Congress to OK exploration along 1.5 million acres of the refuge's coastal reach.

Sloping north out of the Brooks Range down to the Arctic Ocean ice pack, this land is so forbidding that only 440 visitors and 200 or so local Eskimos are believed to have ventured into it in the last year.

It is summer range for a herd of 180,000 caribou, winter ground for the polar bear. Grizzlies, musk ox and wolves roam its spongy, utterly treeless expanse. In winter, the temperature drops to 55 below.

By the reckoning of experts, there is a 1 in 5 chance of finding recoverable oil here, and even a fractional possibility of a massive underground pool on the scale of Prudhoe Bay, America's largest oil field, which lies over the horizon to the west.

These odds are just about as good as oilmen get. They say there are no better prospects anywhere ashore in the United States.

"Here, smell this," says British Petroleum Exploration geologist Peter T. Hanley. In the Arctic late-summer silence on a bluff above the Katakturok River, an hour helicopter flight from Prudhoe, Hanley breaks off a chunk of exposed sandstone and holds it to his nose.

Oil. The rock smells of greasy crankcase oil.

The oilmen ask how a country that is increasingly dependent on imported petroleum and sometimes hostile suppliers can ignore a place like this.

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With American troops standing in harm's way on the oil fields of the Mideast, environmentalists are suddenly on the political defensive in the debate over the North Slope of Alaska. Emotions have shifted. They appeal for calm, for sober reflection.

They note that there are huge, multibillion-barrel oil fields already discovered in developed areas of the Arctic but not put into production because of cost. There is more oil still to be freed up by requiring more efficient automobiles, perhaps mandating a 60% increase in fuel efficiency standards to 45 m.p.g.

"In two years, that would save more oil than the Arctic refuge would contribute in its 30-year life," says Sierra Club Alaska issues specialist Jim Young. "That's like finding a huge new oil field under Detroit."

The conservationists also appeal to the good hearts of citizens on the "outside." There is nowhere in the United States, not a single place, where the air is so pure as in the refuge, the water so clean and the land so untouched.

The Arctic National Wildlife Refuge, ANWR (ann-wahr) many call it, encompasses 19 million acres in northeast Alaska, about the size of Maine. It was established in 1960 and enlarged in 1980. Combined with Canada's adjacent Northern Yukon National Park, environmentalists call it the largest protected block of wild habitat in the world.

Today's debate over drilling on the coastal plain of the refuge is an unsettled matter left open a decade ago by a divided Congress.

One test well was drilled jointly by BP and Chevron, but the results are guarded as a corporate secret, to the chagrin of other oil companies and policy-makers.

Drilling supporters, which include the bipartisan political leadership of Alaska, note that one-quarter of U.S. domestic oil production comes off the North Slope, and the volume of oil from the mother field at Prudhoe Bay is now on the decline. The famous Alaska pipeline, which once carried 2.2 million barrels of oil per day now is down to 1.7 million barrels.

U.S. Sen. Ted Stevens (R-Alaska) warns that it will drop to only 50% of capacity by the end of the decade. He believes Congress will avoid the difficult issue of drilling on the Arctic National Wildlife Refuge until after the 1990 elections, and then probably reconvene in a postelection session. The way Stevens figures it, lines at gas stations will have reappeared by then and it will be time for him to seek drilling authorization.

"Then you're going to see everyone scrambling to say they are doing something -- the Santa Barbara Channel as well as the North Slope of Alaska," Stevens says.

His colleague, Sen. Frank H. Murkowski (R-Alaska) has already introduced an amendment to the defense appropriations bill that would instruct the President to lease all potential oil tracts outside of national parks, including the refuge, if U.S oil imports exceed 50% of consumption.

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Alaskans have a special incentive to keep the oil flowing. There are no taxes on individuals here, indeed residents get an annual dividend check of $800 to $1,000 as their share of the petroleum booty. State government is financed 88% by oil.

Politicians budget according to the price of oil. Gov. Steve Cowper, a Democrat, had to veto $300 million from the Legislature's spending plan this summer, just before the Kuwait invasion sent prices soaring. Now, officials are wondering if the new high prices will allow for a restoration of government services.

Up here in the Eskimo village of Kaktovik, however, the terms of the debate are not so transitory. In this village of 200, they talk about the effects of drilling on this fragile wonderland -- on its biology, on the timeless hunting and fishing cultures of small clusters of native Eskimos and Indians, and the effect on aesthetics, its beauty.

Don Voros has the carriage of a classic Alaska sourdough, heavily bearded and sharply rawboned. He watches over the refuge for the U.S. Fish and Wildlife Service. He treads a difficult line as scientist, as dispassionate expert and as spokesman for an Administration in Washington that is strongly pro-drilling.

"The biology?" he begins. "I think the refuge can be opened up in an environmentally sensitive manner. It's possible for it to work, and with adequate mitigation measures the ecosystem is not going to be significantly affected."

But then he allows, as if revealing some ambivalence, "There could be some major effects, possibly" on wildlife.

Since 1970, scientists have tried to measure the impact of man and drilling on flora and fauna of the Arctic slope. Oil company officials delight in bringing doubters into the airstrips at Prudhoe Bay and the other fields sprawled across the region. Caribou of the central Arctic herd graze along the runways, they hide from the summer sun in the shade of elevated pipelines, they stick their faces up to ventilation exhausts to blow biting flies out of their eyes.

Ducks, swans and foxes abound. The great predators of the region rarely venture too close to the development, so their ability to co-exist is not so visible. But Arco biologist Michael R. Joyce challenges anyone to show damage to animal populations.

"The question is this: Are the critters you share the space with up here doing what they would be doing if you weren't here? Without exception, the answer is yes," he insists.

Some worry that drilling will be tougher on the large herd of caribou, which roams the Arctic refuge. They fear that having more animals in a smaller area will possibly cause cows to squeeze closer to predators during calving. At the very least, environmentalist biologists say there will be a steady degradation of the wild habitat that can only get worse over time.

Already Prudhoe Bay is one of the fast growing tourist destinations in Alaska, with scheduled airline service, a new modular "hotel" in nearby

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(c) 1990 Los Angeles Times, August 26, 1990

Deadhorse, tour buses and all the sights, noises, smells and demands of increasing "civilization." Against that, environmentalists believe the Arctic reserve is all the more important for a future that must be gauged in hundreds of years, not the immediacy of a single moment.

For those far away in the Lower 48, the argument over aesthetics may be abstract. Not so, though, for those who have ever set foot on the lonely tundra 250 miles above the Arctic Circle. Rivers run free in crazy braids, winds blow clean and silently because there is nothing to rustle. On close inspection, the tundra plants are as diverse and exotic as those in an equatorial jungle, only in miniature as befitting a 50-day growing season. Horizons stretch without end, the rhythms harsh and ancient.

"When you look at this, you understand why people call it the Serengeti of the North, why they compare it to the Grand Canyon," says Fish and Wildlife supervisor Voros. His arm sweeps an arc from icebergs to the north and mountains off the south, with so much nature and so little change in between.

"I think they have a pretty good argument," he says.

Voros is among a small group of people standing insignificantly on the Katakturuk River bluff this day, and even the oilmen don't venture a contrary word.

Yes, new technology would significantly reduce the "footprint" of the oil drillers. At Prudhoe Bay, they had to build 8,400 acres of elevated, five-foot-thick gravel roads and drilling pads spread around an area the size of Rhode Island. Now, they use ice paths and pads and reduce the maze of roads. But they cannot eliminate the need to gouge out gravel pits and build reservoirs. There will have to be giant oil processing plants, electrical generating plants big enough to power cities, long gravel causeways that serve as roadways to docks located miles offshore in deeper waters.

"You'll never preserve the qualities that are here now," Voros says.

Debbie S. Miller is an Alaska teacher who recently published a book about her explorations of the Arctic refuge. "Oil and wilderness have one thing in common," she writes in her volume entitled "Midnight Wilderness." "There is a finite amount of both."

Oilmen such as Julian Darley, president of BP Exploration Alaska, see a difference. Oil is different from wilderness because oil can bring countries to the brink of war. Today's confrontation in the Mideast shows that much. "It's an opportunity for a reality check," he says. "This country needs more domestic production."

Times researcher Doug Conner contributed to this story.

GRAPHIC: Photo, Horn o' Plenty: The Iraq crisis has recharged the debate over oil development in Alaska's Arctic Wildlife Refuge. Experts say there is a 1-in-5 chance of finding recoverable oil in this vast preserve, above. Congress is under pressure to OK exploration of a chunk of the refuge's coastal reach; conservationists are appealing for calm. Associated Press; Photo, A view of one of the many picturesque lakes that are located in the Arctic National Wildlife Refuge. AL SEIB / Los Angeles Times

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SUBJECT: ARCTIC NATIONAL WILDLIFE REFUGE; OIL -- ALASKA; ENERGY SHORTAGES; ENVIRONMENT; POLITICS; WILDLIFE REFUGES; IRAQ -- FOREIGN RELATIONS -- KUWAIT; MILITARY CONFRONTATIONS

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MAJESTIC WANDERERS

CARIBOU

Photographs by MICHIO HOSHINO

Drawn by the slow, inevitable pull of instinct, one of the world's great wildlife migrations occurs each spring in the far north. Leaving their winter homes south of the Brooks Range, more than 400,000 caribou in northern Alaska and the Yukon head north to the Arctic coast. First in a trickle, then in a flood, the herds follow age-old migration routes across rivers and around mountains to calving grounds on the coastal plain. There they give birth on the flowering tundra and fatten on plants that burst forth in the brief Arctic summer. They face the perils of predation and endure hellish clouds of insects—playing their part, year after year, in a wildlife pageant rooted to this raw, fragile land.



BUNCHBERRY (DWARF DOGWOOD) IN BLOOM

Coaxed by its mother, a newborn calf wobbles to its feet in Alaska's Arctic National Wildlife Refuge (ANWR), perennial calving grounds for the 170,000 caribou of the Porcupine herd. Newborn calves are easy prey for wolves, grizzly bears, and other predators, which may partly explain why caribou



PASQUE FLOWER BRIGHTENS THE TUNDRA.



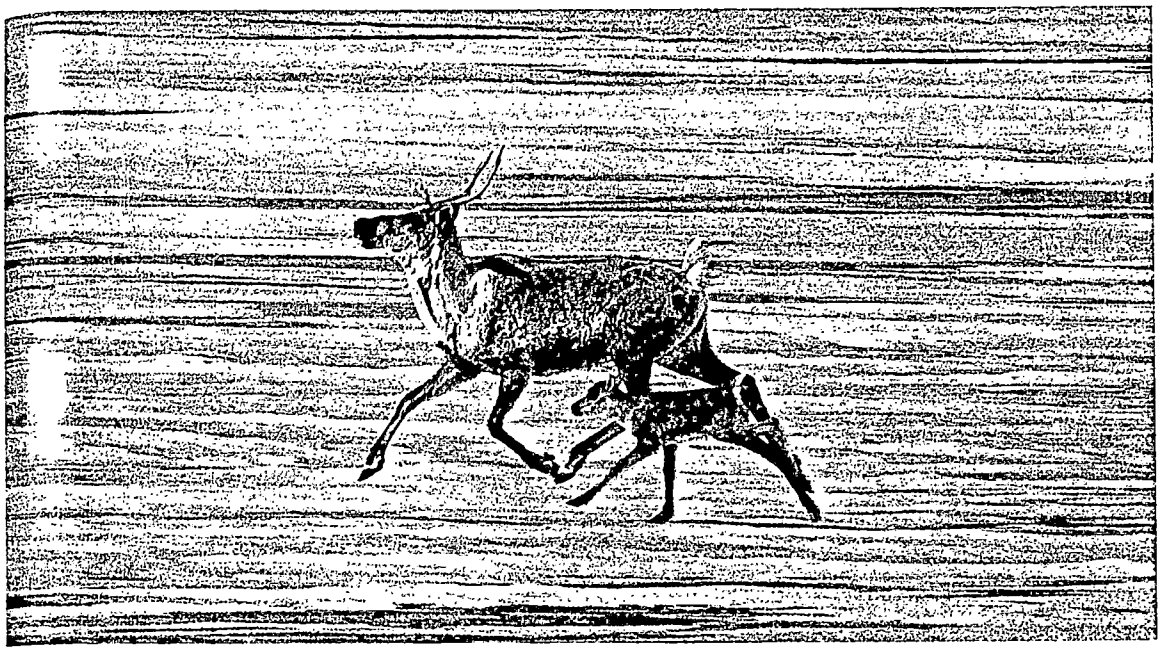


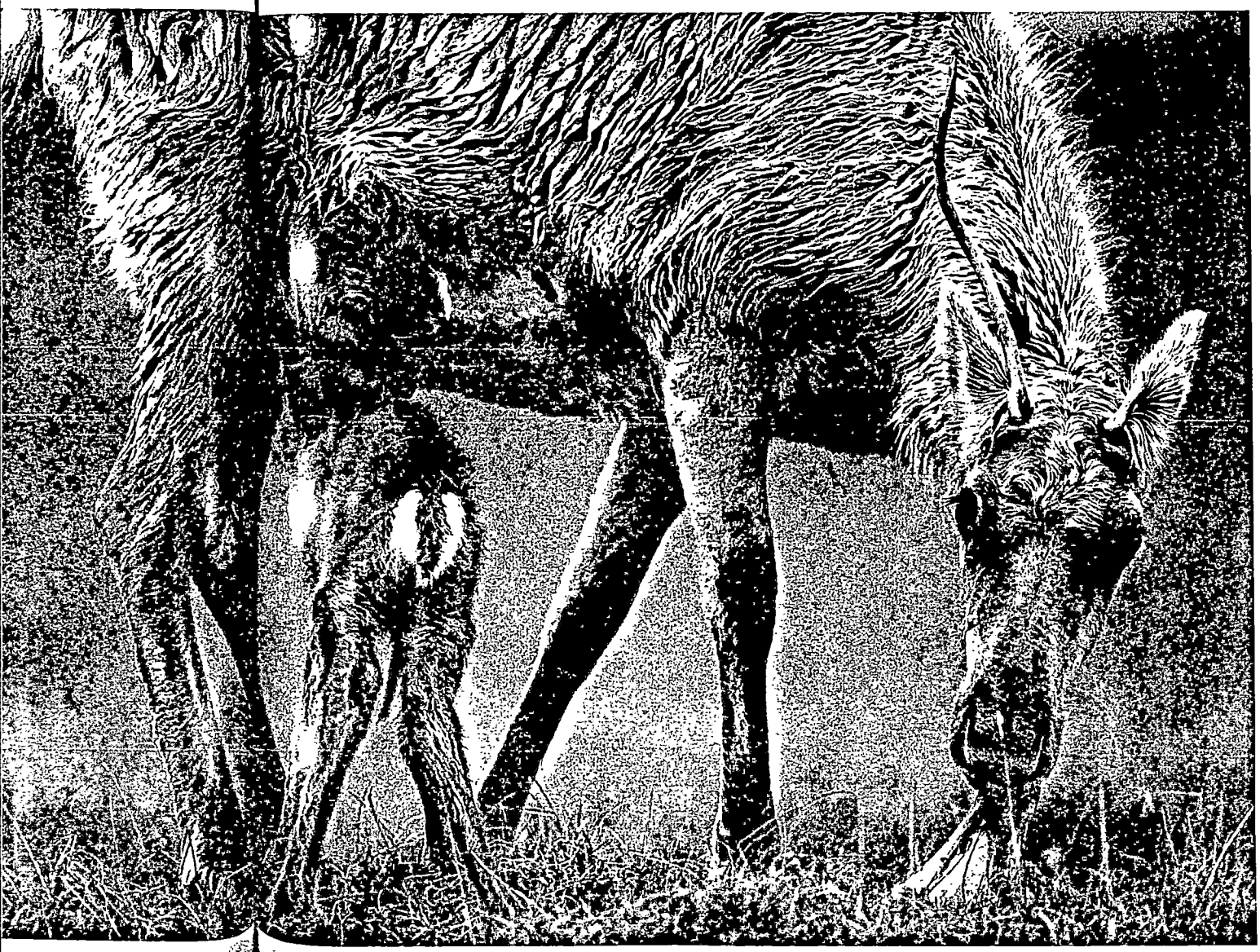
prefer to give birth on the coastal plain, where hunters can be spotted from a distance. Within minutes a calf can stand. After a week it keeps up with its mother, and at three weeks it can outrun a grizzly.

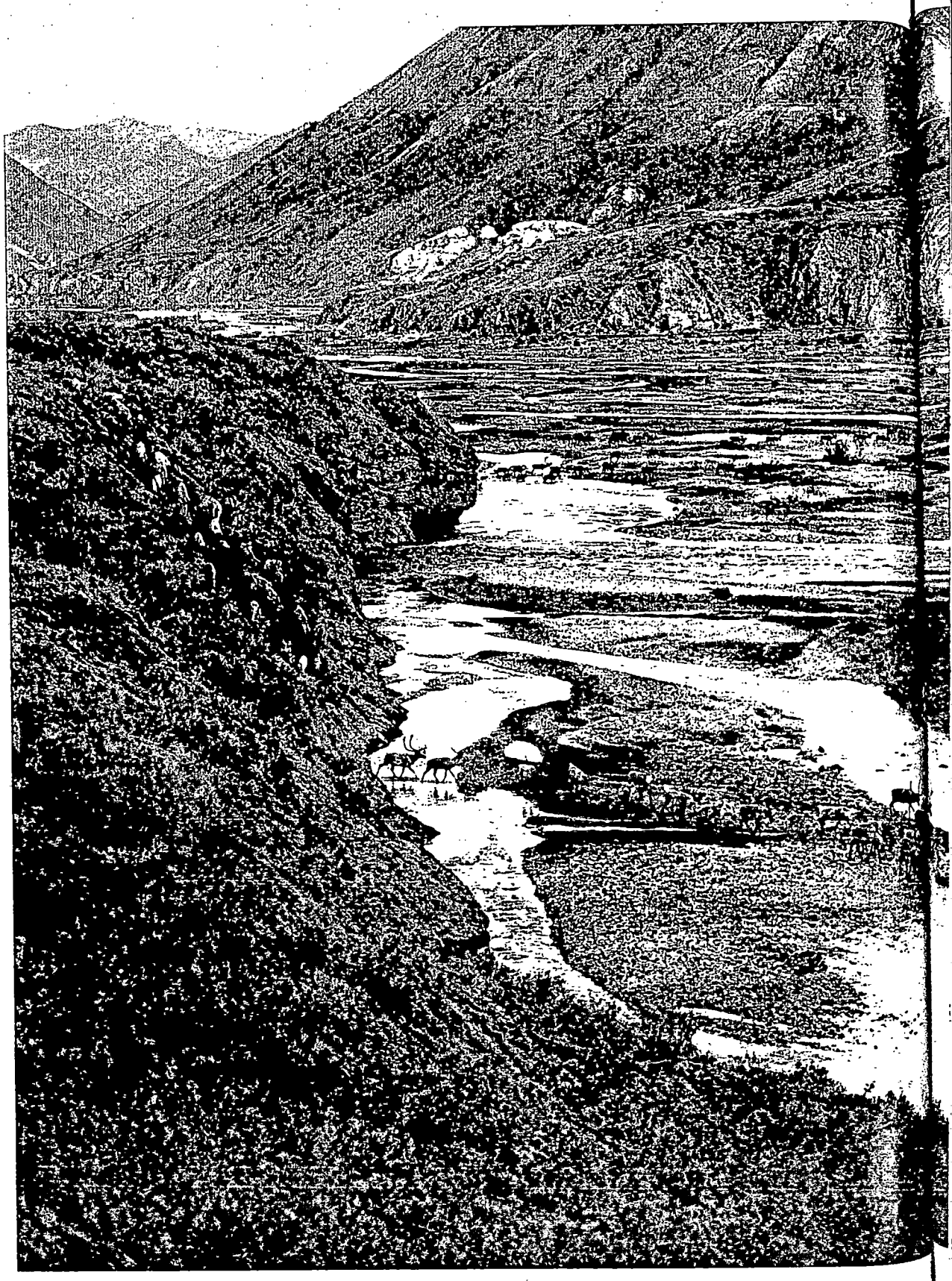
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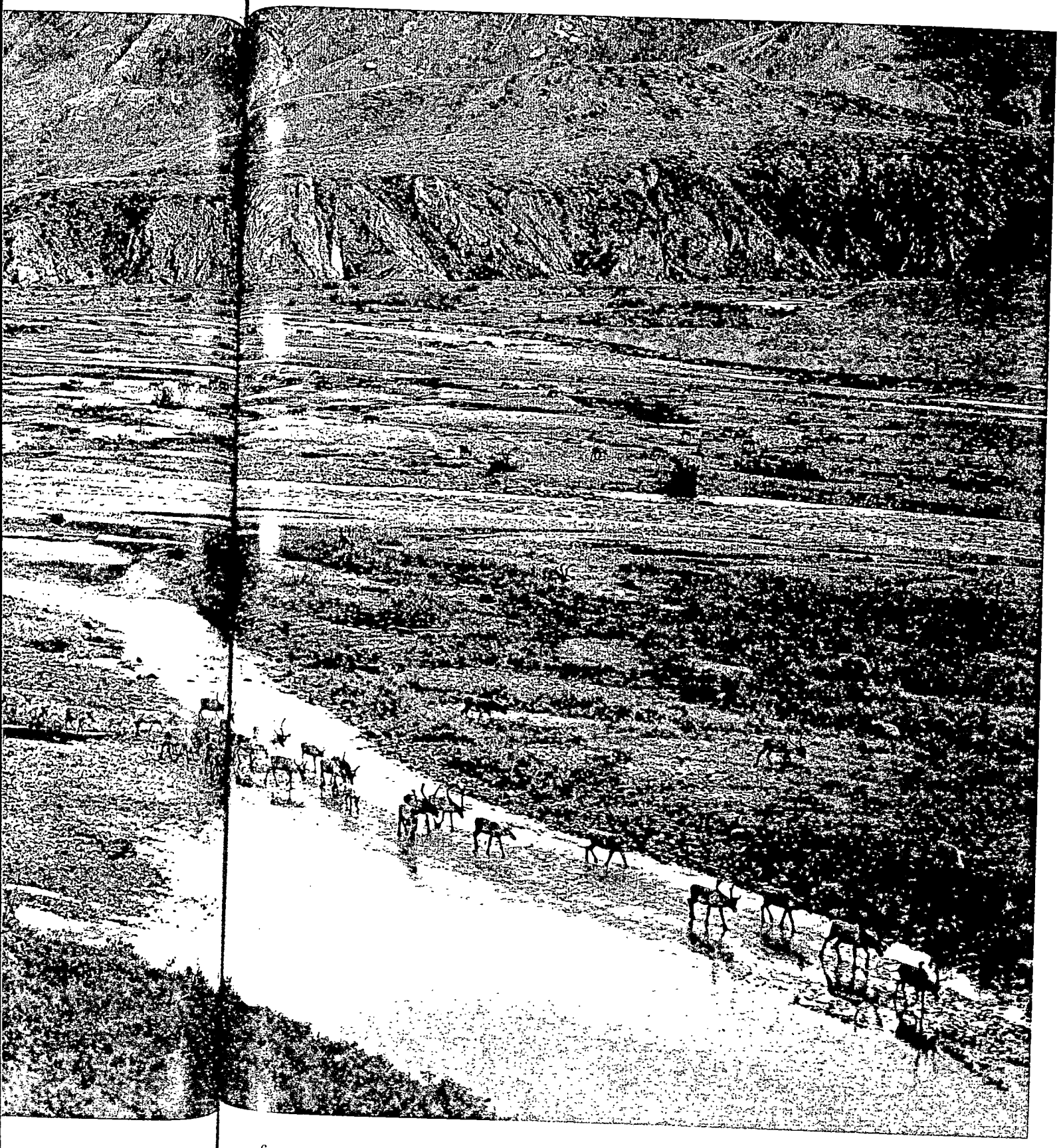
PASQUE FLOWER BRIGHTENS THE TUNDRA.







Headed for rendezvous with cows and calves, bull caribou follow the Kongakut River down from the high country toward ANWR's coastal plain. Bands of the reunited herd



l calves, bull caribou
n the high country
of the reunited herd

often return to these foothills of the Brooks Range to rebuild their strength after calving, then head north again as the nutrient-rich tundra ripens and mosquitoes begin to hatch.







As the precious days of summer grow shorter and cooler, caribou of the Denali herd, south of the Brooks Range, graze the tundra with a new urgency, building the body fat they will need to survive the dark, bitter months of winter. By September males have begun to



unsheathe their newly grown, velvet-covered antlers—all-important weapons in the autumn rutting season.



Stampeded by bloodthirsty insects, a band of the Porcupine herd in ANWR flees the billions of mosquitoes and biting flies that feast on the animals each summer. The caribou's



ıd of the Porcupine
uitoes and biting
ıer. The caribou's

defense is to congregate and keep moving, burning precious energy, or to hug the coast, where ocean winds sometimes ground the weak-flying mosquitoes.

* * *

OIL IN THE WILDERNESS

An Arctic Dilemma



MICHIO HOSHINO

By DOUGLAS B. LEE

Photographs by JAMES P. BLAIR

BOTH NATIONAL GEOGRAPHIC STAFF

SOMEWHERE north of Dawson and Fairbanks, east of Prudhoe Bay and west of the Mackenzie River, you will find neither an Alaska nor a Yukon Territory, no Canada or United States. Instead you enter a land of mountains and broad, lake-filled plains, where caribou have worn trails in rock and geese have traced paths in the sky over millennia of rhythmic wandering; where ice holds the sea and frost the land until a brief, glorious burst of flowering summer; and where men have hunted creatures hoofed and finned and feathered for longer than science can tell. It is a roadless land, a part of the North little touched by the 20th century, or the 19th, or the first. But it is a place where, as sure as daybreak, the South is about to arrive.

For beneath its tundra and a thousand feet of permafrost lie strata that may hold enough oil to transform vast tracts of wilderness and the adjoining sea into one of the largest energy-producing complexes in North America.

During five months of Arctic travels in Canada and Alaska I explored this region, camping, boating, and flying with native people, scientists, oilmen, and defenders of wilderness. The palette of opinion is vivid and multihued, and decisions on preservation and development will permanently imprint this coast of two countries.

"As far as I can tell," says Tim Mahoney of the Sierra Club, "we're standing in the world's greatest Arctic ecosystem. We say, if they can drill here, where can't they drill?"

"Here" is 200 miles north of the Arctic

At a point of no return, Congress must decide whether to unlock Alaska's Arctic National Wildlife Refuge to oil companies working just offshore—or preserve it intact for all to use, including the Gwichin Indians (above), who have lived on the refuge's migrating caribou for generations.

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MICHIO HOSHINO

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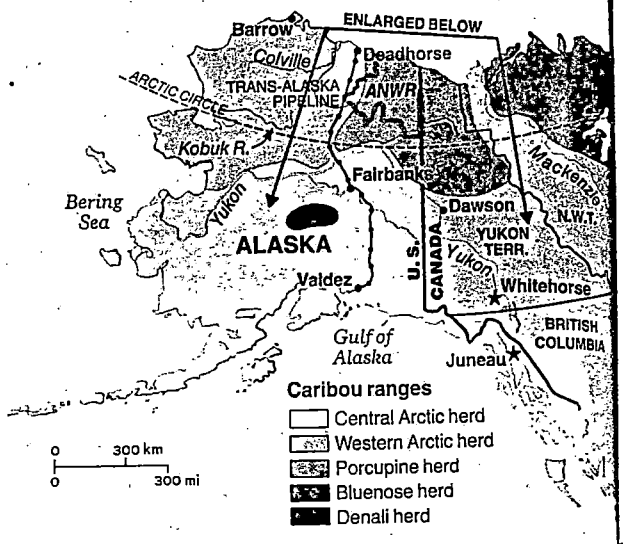
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EARTH '88

"We clearly have an obligation to safeguard the biosphere. It is our home, which we share with all other known life, each dependent upon the others. It supplies our sustenance and stores the legacies of evolution and human works. It provides opportunities for future generations . . . to enjoy the wonder, beauty, and variety of nature."

—RUSSELL W. PETERSON,
President Emeritus, National Audubon Society



PORCUPINE CARIBOU HERD
Each year the 170,000-head herd treks some 350 miles from its winter range straddling the Porcupine River to calving grounds on the coastal plain. The most consistently used calving area lies at the heart of the 1002 area, where caribou also feed on tundra vegetation and seek to evade energy-sapping insects.

SUBSISTENCE HUNTERS
The Indians of bush settlements like Old Crow in Canada and Alaska's Arctic Village have an age-old bond with the Porcupine herd, which provides both cultural heritage and a crucial part of their diet. Fearing disruption of the herd's calving grounds and migration routes, they oppose 1002 development. The Eskimos in Kaktovik, however, favor the development.

Scale varies in this perspective

NORTH

WINTER GROUNDS

WINTER GROUNDS

Yukon

UNITED STATES
CANADA

Ogilvie

DEMPSTER HIGHWAY

Ogilvie Mountains

Richardson Mountains

Peel

Arctic Red

Arctic Red River

Fort McPherson

YUKON TERRITORY
NORTHWEST TERRITORIES

YUKON TERRITORY

ALASKA

Porcupine

Coleen

Old Crow

MOIST TUNDRA

Old Crow Flats

Old Crow

Oil and gas leases under exploration moratorium

NORTHERN YUKON NATIONAL PARK

CARIBOU CALVING

Aklavik

West Channel

Inuvik

Mackenzie

British Mountains

Kongakut

Mackenzie Bay

WET TUNDRA

Mackenzie River Delta

Firth

Herschel Island

Tuktoyaktuk

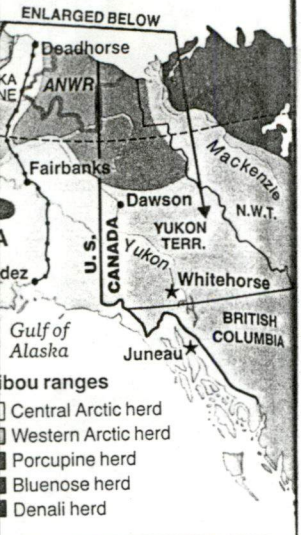
AMAULIGAK FIELD

BEAUFORT SEA

Two countries–one ecosystem

Often compared to the Serengeti because of its vast concentrations of wildlife, the region traversed by the Porcupine caribou herd ranks as one of the most significant unspoiled Arctic ecosystems in the world. It's also the most promising oil prospect in North America, say those who have drilled offshore and at nearby Prudhoe Bay.

Declaring the area a national treasure, the U. S. Congress expanded the Arctic National Wildlife Refuge (ANWR) to 19 million acres in 1980. Setting aside 1.5 million acres of ANWR's coastal plain (designated the "1002 lands"), it directed the Department of the Interior to weigh that area's oil potential against its value as wilderness and wildlife habitat. In a controversial report, Interior recently recommended leasing the entire "ten-o-two" for exploration. Canada declared much of its side of the coastal plain off-limits to drilling in 1984.



Caribou spring migration route

Concentrated calving area

Oil and gas lease boundary

Oil or gas well

NGS CARTOGRAPHIC DIVISION DESIGN: BOB PRATT; RESEARCH: ANN PERRY; PRODUCTION: RAMSEY MURRAY, VICTORIA MCANALLEN; MAP EDITOR: GUS PLATIS OIL AND GAS LEASE INFORMATION PROVIDED BY ALASKA MAP SERVICE, INC., ANCHORAGE, ALASKA; THE MAPMAKERS, PALMER, ALASKA; CANADA OIL AND GAS LANDS ADMINISTRATION, OTTAWA, ONTARIO PAINTING BY ROB WOOD

Scale varies in this perspective

NORTH

UNITED STATES

CANADA

ALASKA

YUKON TERRITORY

Fairbanks

Tanana

TRANS-ALASKA PIPELINE

Yukon

OIL EXPLORATION
Believing that the geology underlying ANWR's coastal plain may be as rewarding as other areas of the North Slope, the Interior Department puts the odds for finding commercially significant reserves in ANWR at 19 percent, with a 1-in-20 chance of finding another "supergiant" the size of Prudhoe Bay.

PIPELINE
Completed in 1977, the Trans-Alaska Pipeline currently delivers 25 percent of U. S. domestic oil supplies from North Slope fields. Yet with Prudhoe Bay's inevitable decline, experts believe the pipeline will be operating at only 25 percent capacity by the year 2000 unless new reserves are tapped.

Yukon Flats

Black

Fort Yukon

Chandalar

Sheenjek

Porcupine

Coleen

DALTON HIGHWAY

WINTER GROUNDS

SPRUCE/ HARDWOOD

Arctic Village

Brooks Range

ARCTIC NATIONAL WILDLIFE REFUGE

Sagavanirktok

PRUDHOE'S CARIBOU
Unlike the Porcupine herd, the central Arctic herd is small (18,000) and nonmigratory, with room to roam over the hundred-mile-wide coastal plain south of Prudhoe Bay. Despite oil-related development, its numbers have tripled during the past 15 years, although the animals shun manmade structures during calving.

Mountains

Kongakut

Aichilik

Jago

Hulahula

Road and pipeline design used in environmental study for 1002 report

CALVING GROUNDS 1002

Colville

NATIONAL PETROLEUM RESERVE

Kaktovik

Kaktovik Inupiat Corporation lands

Barter Is.

BP/CHEVRON EXPLORATORY WELL SITE

Canning

Kuparuk

PRUDHOE BAY FIELD

Deadhorse

KUPARUK FIELD

ENDICOTT FIELD

LISBURNE FIELD

Prudhoe Bay

MILNE POINT FIELD

Bowhead whale fall migration route

RT SEA

"... the Arctic National Wildlife Refuge is established and shall be managed ... to conserve fish and wildlife populations and habitats in their natural diversity including, but not limited to, the Porcupine Caribou Herd ...." *Alaska National Interest Lands Conservation Act, 1980*

Reporting as required to Congress, Secretary of the Interior Donald P. Hodel in 1987 recommended opening much of the sensitive coastal plain of ANWR to full oil exploration and development. Key conclusions of the final report, however, edited after public comment, show striking differences from the draft prepared by Interior Department field staff (A)—as well as sharp contrasts with concerns of the EPA (B) and a subsequent Interior Department study (C) on likely long-term damage to the ecosystem.

A DRAFT REPORT: **Long-term losses in fish and wildlife resources, subsistence uses, and wilderness values would be the inevitable consequences ... development will result in widespread, long-term changes in wildlife habitats, wilderness environment, and Native community activities. [Development] could result in a major population decline [of the Porcupine caribou herd] and change in distribution of 20-40 percent.... Because of the many variables involved and lack of relevant experience in estimating impacts on this herd and because of the difficulty of quantifying impacts, this estimate is uncertain.**

FINAL REPORT: Impacts predicted for exploration and development drilling were minor or negligible on all wildlife resources on the 1002 area.

Potential major effects on wildlife from production are limited to the Porcupine Caribou Herd and reintroduced muskoxen.

A change in distribution of the [Porcupine caribou herd] could reasonably be expected. The potential for occurrence of a population decline ... cannot be predicted nor the size of a decline estimated. Nevertheless, there is a risk that a decline could occur. However, no appreciable population decline is expected as a result of oil development.

B **EPA comments on final 1002 Report: The document totally ignores cumulative impact.... Contaminants are totally ignored.... Of the 21 [drilling mud reserve] pits for which effluent data were reported, 20 violated one or more effluent standards.**

Contaminants are a major issue that deserves more attention.

Current EPA and Alaska procedures and regulations are adequate to ensure no significant deterioration of air quality.

Reinjection of drilling muds and other fluids, and careful construction will help reduce toxic spills.

C **Fish and Wildlife Service draft report on Prudhoe and pipeline: Actual impacts to wilderness have been much greater than predicted due to the unanticipated demand for land.... Fish and wildlife habitat losses resulting from construction and operation of the Pipeline System and Prudhoe Bay oilfields were greatly underestimated.... Long-term and cumulative impacts have yet to be assessed, while additional impacts will continue to occur.... A similar lack of predictive capability may be expected whenever development moves into new geographical areas....**

The modification of approximately 12,650 acres (0.8 percent of the 1002 area) would be a minor effect on area vegetation and wetlands.

This Nation has proven that it need not choose between an improving environment on the one hand, and exploration and development of the energy resources required for growth and survival on the other. We can have both.

Circle, on the Alaska coastal plain in the Arctic National Wildlife Refuge (or ANWR, pronounced AN-wahr). Before us is the blue Beaufort Sea, studded with ice in late August. Around us lies a vast arc of reddening tundra, walled on the south by the white Brooks Range. Only here and along Canada's bordering coast do mountains come so close to this ocean, telescoping marine, coastal, and alpine ecosystems into a profile of the Arctic.

"If we're going to develop this," Tim declares, "we might as well go ahead and dam the Grand Canyon. You can make the same arguments for national energy needs. So why don't we? Because the nation has decided it's in its own best interests to preserve the Grand Canyon and find our energy elsewhere."

Is this refuge our Grand Canyon of the Arctic? And will development on its coastal plain alter it as surely as a dam floods a valley? That is an issue which Congress must judge.

Containing more than a fifth of the federal refuge system's total acreage, ANWR is often called North America's Serengeti for its size, pristine condition, and large, migratory Porcupine caribou herd. Set aside in 1960 as the

nine-million-acre Arctic National Wildlife Range, the refuge was given its present name and expanded to 19 million acres by Congress in 1980. Nearly half of it was granted wilderness status, which precludes mineral exploration and development.

ONLY IN ANWR is Alaska's Arctic coastline currently off-limits to oil leasing—105 miles out of 1,200. But much of ANWR's protected coast lies within what has come to be called the "1002 lands"—ten-o-two—for the pertinent section of the 1980 federal legislation addressing one and a half million acres of coastal plain and foothills. This coastal zone is the biological wellspring of an enormous ecosystem, shared with Canada, of which the refuge is only a part. Knitted by wildlife populations and native cultures, the region is above all made one by the 96,000-square-mile range of the Porcupine caribou herd, which gathers on the coastal plain for two critical summer months of calving and feeding.

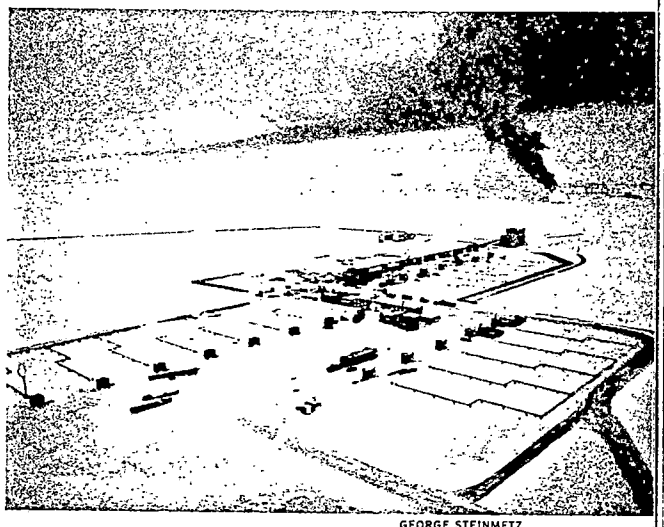
In 1980 Congress left the future of the 1002 lands undecided, directing the Department of the Interior to evaluate their energy potential and the environmental impacts of oil development. In spring of 1987 a controversial report prepared by the department recommended immediate leasing of the 1002 area.

As chairman of the Alaska Coalition, Tim spearheads efforts to have the 1002 area declared wilderness. At our camp on the plain, in a prime target area for exploration, we walked out two by two, or alone, to feel the space of the tundra, measured by mountains at its nape and the sea at its feet. Low, voluptuous ocean clouds flew over the plain, trailing shadow and sunlight like rippling waves. Gossamer fields of cotton grass filled the air with downy seeds. A hunting trio of jaegers plunged in the wind, while a rough-legged hawk circled, uttering a thin, keening wail.

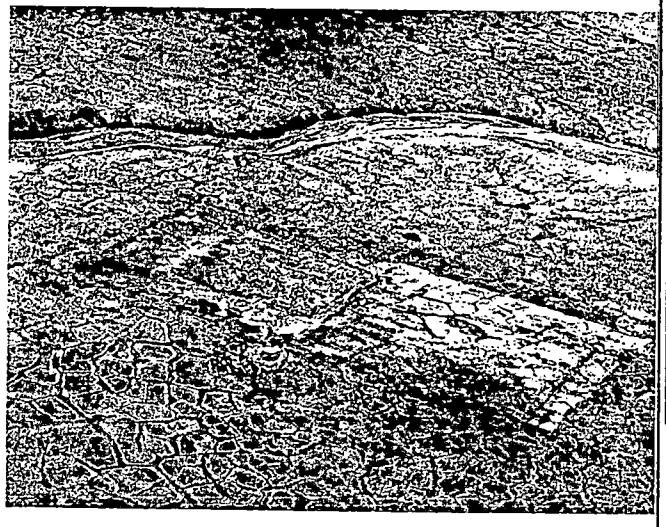
"You feel like you're walking on the curvature of the earth," observed Senator Wyche Fowler, Democrat from Georgia, camping with us on his summer vacation. "And if you kept walking, you'd come to the edge."

To an exploration geologist, it's an edge of a different kind: the chance of a lifetime to search for "elephants"—oil fields with more than a hundred million barrels of producible reserves—in perhaps the last major hunting ground on North America's mainland.

Footprints of the oil seekers will show in fragile tundra long after the wells run dry. To minimize damage, North Slope companies drill exploratory wells only in winter and confine production wells (top) to gravel pads, with wells drilled out at wide angles.



GEORGE STEINMETZ



A "mystery well" on native-owned land within ANWR was drilled by Chevron and British Petroleum during 1985 and 1986 with strict environmental guidelines. Even so, traces remained more than a year after reseeding began (bottom). But did they find oil? "The best kept secret since the A-bomb," says an industry magazine.

"THE DARK STAIN is actually oil," said Roger Severson of Chevron, chipping sandstone with his field hammer. A wind blew from the days of woolly mammoths; Roger and I hunched in our parkas and swiped at our noses. The lanky, thoughtful Californian handed me a piece of ancient riverbed redolent of crude oil: primordial and modern, the bittersweet smell of the 20th century on the Arctic breeze. Such signs first drew attention to Arctic oil.

A company helicopter had brought us to the 1002 area from Prudhoe Bay, North America's largest oil field. Beginning 40 miles west of the refuge, the industry's 20-year-old Arctic beachhead and four younger fields stretch for 60 miles along the coast. Connected by the Trans-Alaska Pipeline System (TAPS) to the port of Valdez on the Gulf of Alaska, they pump 2.2 million barrels a day—a fourth of the nation's domestically produced crude, one-eighth of daily consumption.

But more than half Prudhoe's 11 billion recoverable barrels are already gone.

"At the year 2000," Roger said, "with our known technology and producible reserves, the pipeline will be only 25 percent full. Soon the country will import more oil than it produces. That's why we need new reserves."

That is why, despite a worldwide sag in oil prices, exploration activity bustles over newly leased tracts of continental shelf in the Beaufort Sea. That is also why the industry has mounted its most intense lobbying effort of the decade, to open the 1002 lands.

Opponents like Tim Mahoney question the relative value of the estimated 3.5 to 9 billion barrels that ANWR might produce—half a year's national consumption at the low end.

"Some argue that conservation would make up that amount of energy," says Roger, "but conservation's not going to make new reserves. ANWR's not the only answer. But it's a significant part of the answer."

It is indeed only one piece in an energy mosaic emerging around the Beaufort Sea. A major find in the Canadian Beaufort promises future development there. On land in Alaska the Prudhoe-based complex continues to expand westward, while to its east, man-made islands tap new fields close to shore (facing page).

"There's a money bomb set to go off here," said a helicopter mechanic in ANWR. To the west of the refuge in the Prudhoe Bay field lies Deadhorse, where one exploded 20 years ago. Gateway to the oil fields and transport hub of Arctic Alaska, it can be a jarring sight after covering miles of wilderness measured in hours of flying—like waking up on the wrong side of town.

Heading west from the jetport, you leave the dumps and loading areas behind. Occasional clusters of orange, box-like wellhead housings signal that we are in the Kuparuk field, 30 miles from Prudhoe. With 1.9 billion recoverable barrels, it is second on the continent only to Prudhoe itself.

"You don't see any oil, hear any oil, don't see anything move. Just boxes," smiles Tony Kinderknecht of Standard Alaska.

Kuparuk's wells, ten to a 35-acre pad, slant out by directional drilling to siphon as much as four square miles of oil field. At the newer Endicott field, 70 wellheads set only ten feet apart on two artificial islands totaling 45 acres drain the continent's ninth largest reservoir, with 300 to 350 million recoverable barrels.

"This is development that's evolved into something very compact," Roger Severson told me. "It's very significant to look at in light of possible development in ANWR."

DÉJÀ VU HAUNTED ME beside the silent, gleaming pipelines. It called up the marshes of east Texas, not far from the Spindletop field where the modern industry was born. I hunted for many winters with my father and brother in those wetlands that seemed to grow oil wells and canals as natural features. Some of the ducks I bagged may have hatched here, on the North Slope's oddly familiar summer bogs.

The oil boom battered the Texas coast's wetlands with all the restraint of a gold rush. On the tundra the wildcatters' corporate descendants have moved more cautiously, and their performance wins high marks.

But the horizon is never free. It was troubling to imagine thousands of workers, and all the apparatus they control, transported to the untrammeled line of tundra on the 1002 lands. However fastidious its housekeeping, the oil complex is simply too large to avoid all impact.

A U. S. Fish and Wildlife Service draft report documented significantly greater impacts from the Prudhoe fields and the pipeline than were predicted in a 1973 environmental impact statement. New discoveries have since spread development over 800 square miles, an area half again as large as that anticipated.

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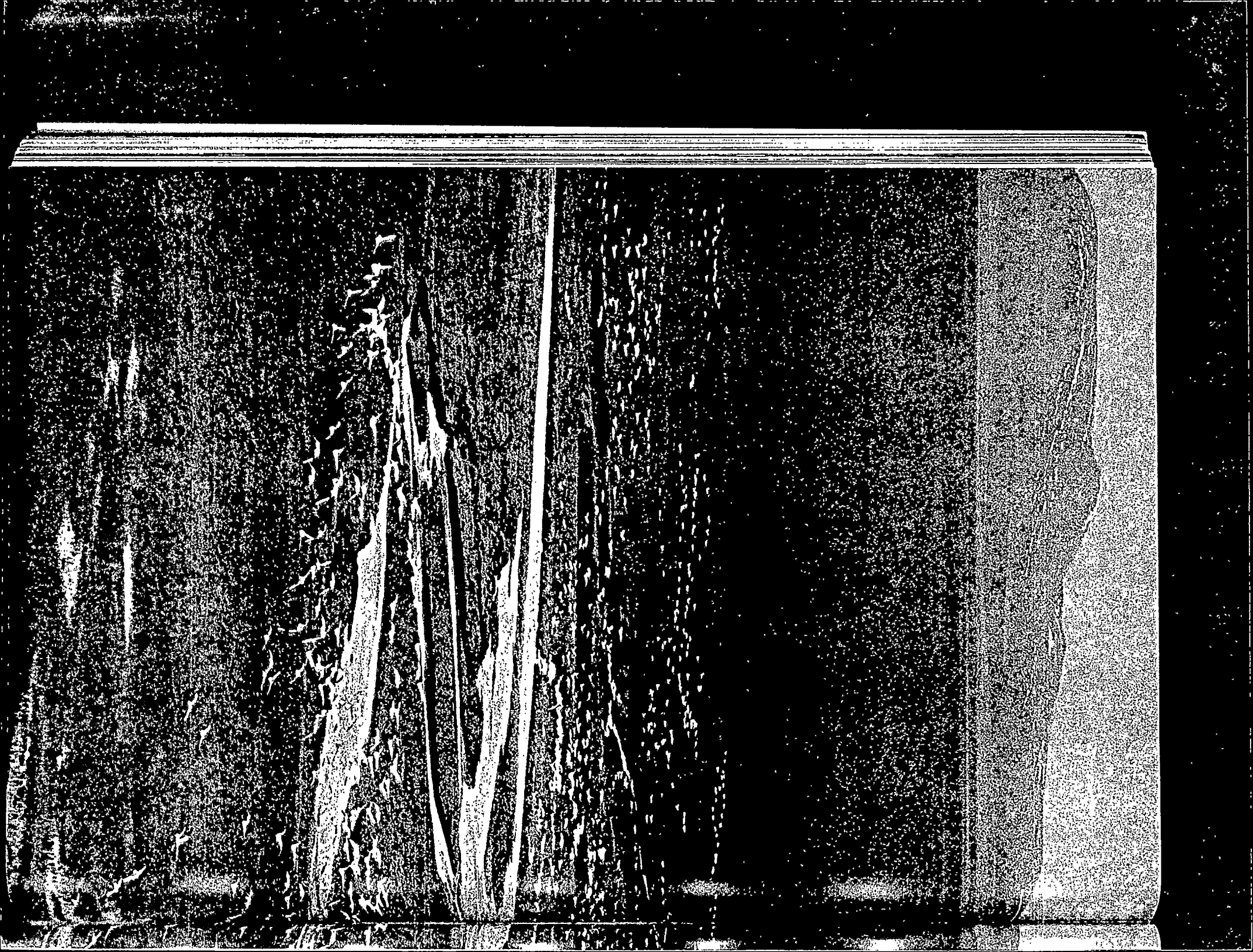
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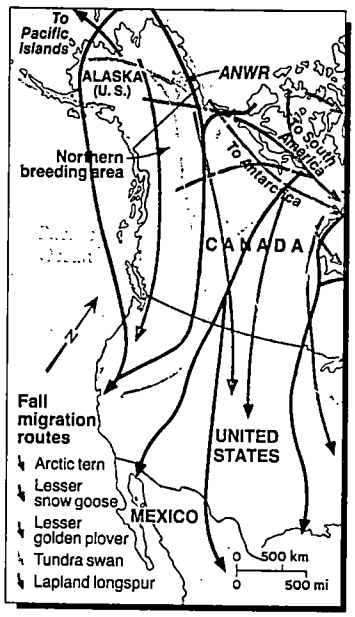




State of the art in offshore drilling, the Endicott field (top) is a man-made island in the Beaufort Sea extracting 100,000 barrels a day. As at Prudhoe Bay (above left), an Endicott oil worker (right) divides his time between a space-age indoor environment and some of the harshest working conditions on earth.







NGS CARTOGRAPHIC DIVISION

Like rivers on the wing, birds from around the world flow onto ANWR's coastal plain each summer. Visitors include tundra swans, 30 species of shorebirds, and as many as 325,000 lesser snow geese (left) that migrate to the 1002 area to fatten on tundra vegetation. While staging for their long journey south, the geese are so skittish that a disturbance two miles away will flush them. Airplanes routinely traveling to and from oil outposts could reduce the flock's feeding time, weight gain, and migration survival rates. Similar fears are voiced about the polar bears, musk-oxen, and other mammals that inhabit the 1002 during vital stages in their life cycles.

Facilities cover 22,000 acres, while secondary effects such as release of contaminants reach a much wider area. Dumping of sewage and spills of oil and other toxic materials have been more frequent than predicted. And studies have indicated that organic pollutants affect the food chain in ponds hundreds of feet from leaking "reserve pits."

Air-quality standards are met, but critics question whether levels set in the lower 48 are low enough to protect the fragile Arctic. At Prudhoe the world's largest assemblage of gas-fired turbines pumps nearly as much acidifying nitrogen oxide into the atmosphere as the state of Delaware. If questions about existing development are unanswered, the implications of further industrialization in the 1002 lands remain largely unaddressed.

"The 1002 report was basically biological," said Larry Dietrick, North Slope manager and now director of Alaska's Division of Environmental Quality. "What they didn't do was look at air, water, and waste disposal at Prudhoe. They want me to write stipulations for ANWR, but the groundwork isn't complete. What we need is a 1002 report for air and water before Congress makes its decision."

"We're only 20 years into a 50-year experiment in Arctic development," state biologist Ken Whitten points out.

LONG-TERM EFFECTS of 1002 development on wildlife is another source of unease. Sheaves of reports have discussed the example of Prudhoe Bay, where caribou of the central Arctic herd feed beside roads, and the herd, which lives in the vicinity year-round, has increased from 5,000 to 18,000 head in the past 15 years. But conclusions cannot be quickly drawn.

Within a mile of roads or facilities in Prudhoe Bay, calving by the central Arctic herd has been cut in half. In the 1002, exploration is targeted in several hundred thousand acres of prime calving and feeding grounds for the 170,000-head Porcupine herd. Long-term effects on productivity cannot be predicted for the migratory Porcupine animals, larger in numbers than the central Arctic herd and dependent on a segment of coastal plain much narrower than Prudhoe's.

Curiously, caribou herds worldwide have grown in the past decade. Cyclic increase and reduction seems to be natural. But no one can fully explain why.





"We don't want to be subjected to life in a lonely Arctic ghetto," says Oliver Leavitt (top), vice president of the native-owned Arctic Slope Regional Corporation. Created by native land-claims legislation in 1971, ASRC parlayed land and mineral rights into "dramatic improvements" in the lives of its shareholders, largely through lucrative deals with Prudhoe Bay oil giants. ASRC also holds mineral rights to 92,000 acres in the 1002.

"We are subsistence hunters," says Nolan Solomon (bottom), a whaling captain in Kaktovik, an Eskimo coastal village near ANWR potentially affected by offshore drilling and seismic blasts. "The whales have very good hearing," Nolan explains, displaying the ear bone of a bowhead whale.





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At the height of summer a spectacle occurs on a scale not seen in the lower 48 since the buffalo truly roamed. Soon after the calving, bulls join mothers, yearlings, and young, and the whole free-ranging herd is strewn across the green coastal plain, perpetually on the move.

It is a crucial time of building fat. But these are the misery months of mosquitoes and flies. On the worst, windless days stupendous aggregations of caribou school like fish, as many as 80,000, and often move en masse to beaches in search of breeze and relief. Large groups in existing oil fields are often reluctant to cross busy roads next to pipelines. If large-scale 1002 development interferes with normal movement, loss of feeding grounds and relief from mosquitoes could cause a decline in nutrition and overall health.

"An oil field is complex," cautions Dr. Dave Klein of the University of Alaska at Fairbanks, "but we can understand it well enough to make it work. In the case of ecological relationships, the complexity is far greater."

NO ONE CARRIES a deeper knowledge of those complexities than the Eskimos of this coast. They also know the difficulties of their own transition from an ancestral to a modern world. Where once they depended on seal and caribou, life today is fueled by oil.

A billion dollars reaped in taxes on oil development in the past decade have transformed daily life for the 4,800 residents of Alaska's North Slope Borough, scattered across the Arctic in some of earth's loneliest communities. They financed new oil-heated houses, gravel roads, electricity, and services such as "honey bucket" sewage pickup, new schools, modern clinics, and satellite TV. They also paid for new jobs and construction-work wages that averaged $26 an hour.

"We've become Americans," said Oliver Leavitt, an Eskimo a long way from his log-cabin beginnings, in a glass office building in his hometown of Barrow, population 2,850. As vice president of the Arctic Slope Regional Corporation (ASRC), Oliver helps steer the ninth largest corporation in Alaska—and among the most profitable of 13 native-owned regional corporations, thanks to oil.

As shareholders, North Slope Eskimos have a stake in its fortunes, which Oliver believes depend on 1002 development. Both borough and corporation have felt the pinch from slumping oil prices, with borough revenues down 20 million dollars in 1987. A boom in ANWR means new blood, and most Eskimo leaders are vigorously in its favor.

But the choice is not a simple one viewed from Kaktovik, an Inupiat Eskimo village of 200 in the heart of the 1002 area's coast. Sleet squalls cross the gray-green lagoon, draping the village in gauze. It seems herded onto its knoll, feet drawn up from the sea—prefab houses, packing-crate add-ons, Quonset huts, a modern school, and the scoop towers of radar like strange cathedral spires. These are the steel sentinels of the Distant Early Warning (DEW) System. The military presence first appeared in the 1940s, eventually forcing the village to move three times, like a harbinger of changes to come.

"You're seeing a mandated change in lifestyle, produced by money," said Kaktovik's Mayor Loren Ahlers, a California farm boy who came to work at the DEW line in 1967, married, and stayed. "These people have grown to a modern world since I've been here. They have electric bills and house payments. It's a cash economy. You can't go backward."

The village is on Barter Island, between the plain and the Beaufort Sea, a trading crossroads far back into prehistory. To the Eskimos the plain is a birthright, a source of food, and now maybe a door to prosperity: They stand at ground zero of the coming boom. But the prospect brings anxiety, uncertainty.

"All the permanent jobs are filled," said Susie Akootchook, village-council secretary, whose two teenagers would soon finish high school. "Development would bring jobs. But I'm afraid it will hurt the land."

At Kaktovik's clinic I met a young woman who held a firmer view. "I wish they'd just stay the hell out of here. There'd be drugs and alcohol coming in like crazy; scare all the animals away, and stuff like that. But we know it's going to come whether we want it or not."

The local government, reckoning this new force as irresistible as the DEW line, reversed initial opposition and endorsed 1002 development if the surviving Eskimo "subsistence" life is protected when roads come. Many villagers still rely on traditional food: Dried caribou hangs in modern kitchens, and fish fill electric freezers. Half or more of most families' meat, fish, and fowl still comes from the land, says biologist Sverre Pedersen.

And from the sea, at the hands of leaders like

Nolan Solomon. A taut, quiet man, Nolan is a Kaktovik whaling captain and serves on the Alaska Eskimo Whaling Commission. He holds out a strange rounded bone like waxed ivory, twice as large as his fist.

"This is a whale's ear. They can hear a thousand miles. They hear you as soon as you go out on the ocean."

The ear bone is from a bowhead he harpooned from his open motorboat 20 miles offshore. Although the species is endangered, the village is allowed three strikes a year under a native hunting quota. But a whale struck and lost is one gone without.

Nolan was assembling explosive harpoon heads on his living room floor. Radio transponders track the harpooned animals. From his boat he can speak to Prudhoe Bay by ship-to-shore radio for weather and traffic updates. (Oil companies sponsor the system to minimize conflict between native whaling and exploration activity.) Like so many pursuits on the northern frontier, whale hunting applies the new technology to a life rooted in the Ice Age.

The whaling season lasts from September into October as the bowheads migrate past. A successful captain receives the honor of distributing the meat and muktuk, whale skin and blubber, in an established order that includes the whole village. "That's the captain's pride, to feed all the people," said Nolan Solomon. "When we get a whale, all of a sudden there'll be 200 people on the beach."

But "the ocean is real sensitive," as Nolan told me, and so is the luck of a whaler. The season drew on, and polar bears came ashore to roam the airstrip. By late September my last sight of Kaktovik was a mother and two cubs prowling a sandbar near the hangars. Soon after I left, autumn did too; ice covered the ocean and the lagoon, and Kaktovik went into winter without a whale.

IN BARROW I asked Oliver Leavitt about the future of his people on that distant day when the last well is dry. He answered with one word: "Coal." Thick seams, comparable in magnitude to those of the entire lower 48 states, underlie much of the North Slope. Along with huge deposits of natural gas, they represent energy not yet badly enough needed to pay its own way to the ravenous South. But its day will come, and present decisions will be planks of future policy.

Not all the region's natives expect to dine at oil's table. In the south of the Brooks Range, nestled in a crook of the refuge's border, lies Arctic Village, reachable only by air or taiga trail—arguably the most isolated Indian village in the nation. Much of the diet is meat, and three-quarters of it comes from the Porcupine caribou herd. If numbers decline or migration routes change due to 1002 development, life will change for Arctic Village's Gwichin Athapaskan Indians and their close Canadian kin over the border in Old Crow, whose existence revolves around hunting and meat.

"People are making decisions in Washington, D. C., that are gonna affect our land. The caribou, that's what we eat, it's like our body," said 33-year-old hunter Kenneth Frank. Caroline, his wife, is an aide at the village school where she hopes someday to teach.

"Nobody around here has a hangover," said Kias Peter, a hunter who was my host for four days. Alcohol has never been tolerated since Arctic's founders, strong hunters and Anglican believers who migrated from mountains to valleys, began settling here at a summer fishing hole early in this century.

"Whenever you get meat from the land, it costs a lot of work," said Kias, carving steaks from a furred haunch. "Sometimes caribou don't come around. That's when we have to buy meat from store. Meat with stamp on it."

Every ounce of food not taken from the land arrives by plane. Without plentiful caribou, the cost of eating would likely make life in the village untenable. The perceived common threat to their herd united Gwichin across the border in June of this year for the first cross-border tribal gathering since free passage and barter of food ended with security restrictions during World War II. In a formal statement they declared that "the very future of our people is endangered by proposed oil and gas exploration and development in the calving and post-calving grounds in the Arctic National Wildlife Refuge."

In Alaska the Gwichin stand virtually alone in opposing development. In Canada, on the other hand, native communities have received full support from the federal and territorial governments in their objections. Oil exploration has revealed a billion-barrel prospect in the Canadian Beaufort that may someday pay for a pipeline to the South, but no commercial reserves have been found on Canada's North Slope. A 1984 federal lands-claim settlement with the Inuvialuit—the Inuit, or Eskimos, of

Canada's western Arctic—made wildlife conservation and subsistence hunting the top onshore priorities, overseen by an Inuvialuit-controlled game council.

The settlement created the three-million-acre Northern Yukon National Park on ANWR's border to protect the Canadian portion of the Porcupine herd's calving ground from any future development. Canadian officials have cried foul over U. S. government support for 1002 development, citing a recently signed binational agreement to protect the herd and its habitat.

In the park I felt an atavistic calm when I walked through calving herds on a softly sunlit night. Later, rafting the Firth River with guide Martyn Williams and a convivial group, I felt the mood grow quiet as we traversed a treeless land with no place to hide.

AT A SUMMER CAMP for hunting beluga whales in the Mackenzie River Delta, I met Billy Day (right), an Inuvialuit leader who helped negotiate the settlement that created the park and gave his people unprecedented control over their land. Jut-jawed and broken-toothed as an old beluga whale, Billy has a brown-sugar smile for the grandchildren who surround him.

"From now until eternity, any child will be a part of that claim," he said.

Billy's youngest son, 17-year-old Linley, sat with me on the bluffs in twilight, slapping mosquitoes and watching for the telltale spouts of beluga whales on the bay. He left school after third grade, growing up with a bush education at his father's camps. He told me how to catch beluga whales, and the price of furs, and how to navigate in fog, and about the ghosts heard here—voices from tundra graves nearby, and a baby that cries at summer's end, when the first darkness comes.

The dead are always close by on this coast. On a midsummer midnight on Herschel Island, now a territorial park staffed with Inuvialuit rangers, I stood at a driftwood grave and a skeleton bared by time, from long before white whalers arrived here a century ago. The newcomers devastated bowhead stocks for baleen to stiffen Victorian corsets, and brought alcohol and disease to Inuvialuit who flocked to whalers' winter quarters on Herschel.

The sun hung low over the Pole and threw a golden shaft across the island and the plain to spotlight the Firth's canyon where it leaves the mountains. Near that point a rock juts from the tundra, 265 feet above the river valley. The Porcupine herd migrates past this rock, and hunters have gone there to spy caribou and waylay them for as long as men have hunted this coast. Artifacts found at the rock's feet cannot be dated to reveal the order of the cultures that left them, for frost has heaved them into random levels in the soil.

Anything buried on this coast, I realized then, will someday be resurrected. There is about it something of the eternal, or something as close as we may ever glimpse, and deeds done now will be read in the book of the land for longer than we know. □

For the good of his grandchildren, Inuit leader Billy Day helped win a native land-claims settlement in Canada that made wildlife conservation and subsistence hunting top priorities on the Yukon side of ANWR's border. Questioning the oil-money life-style, he remembers when nearby offshore drilling was phased out: "People thought this was something that would never end," he says.

